



Appendix A

RF Test Data for BT(BDR/EDR) (Conducted Measurement)

Product Name: Massager Appliances(Vibration Plate)

Trade Mark: N/A

Test Model: ZZ-SZ314

Environmental Conditions

Temperature:	26.5℃
Relative Humidity:	55%
ATM Pressure:	101Kpa
Test Engineer:	Emiya lin
Supervised by:	Simba Haung

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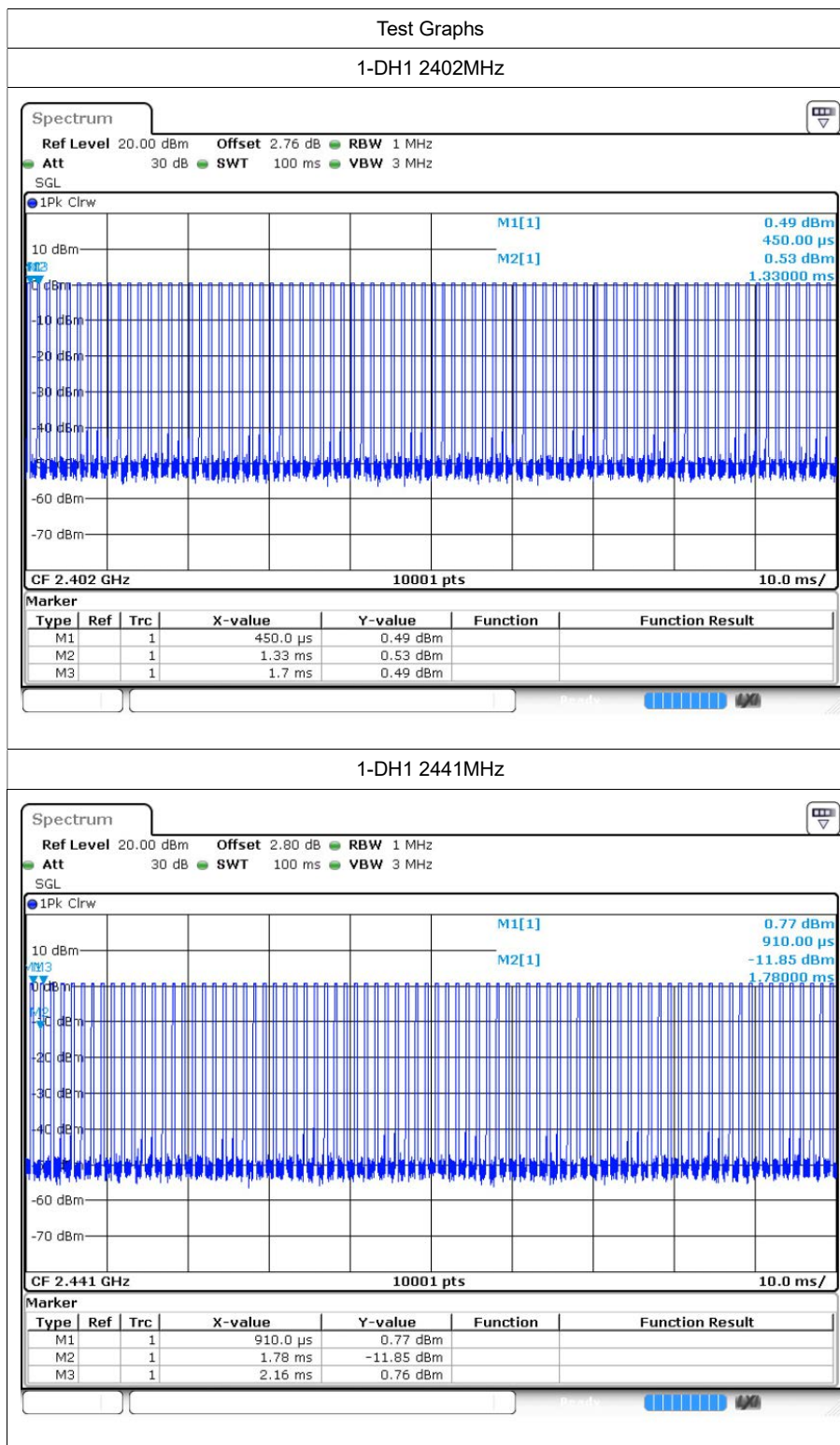
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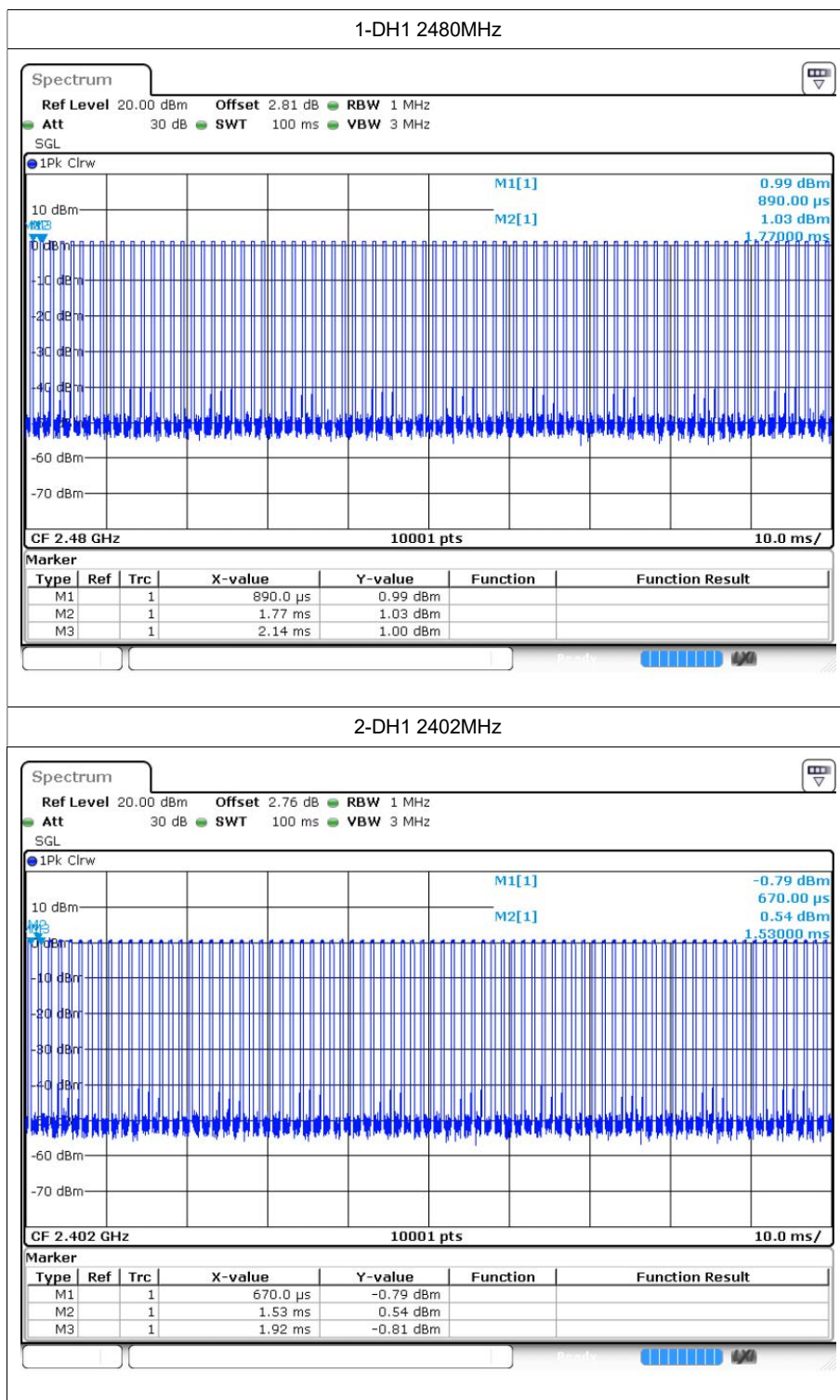
1 Duty Cycle

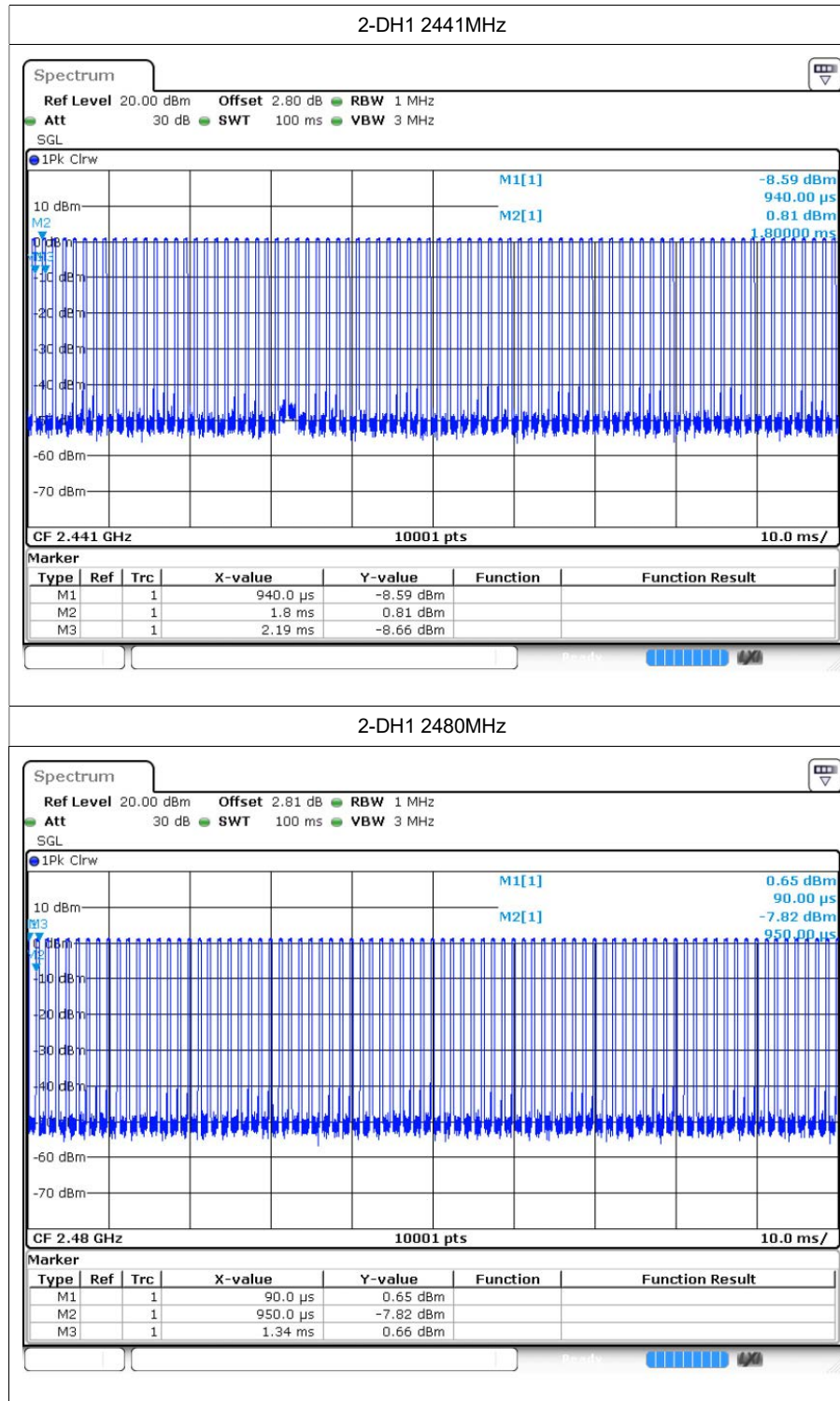
1.1 Test Result

Mode	Frequency (MHz)	Duty Cycle (%)	Correction Factor	1/T (kHz)
1-DH1	2402	30.4	5.17	2.7
1-DH1	2441	31.2	5.06	2.63
1-DH1	2480	30.4	5.17	2.7
2-DH1	2402	32	4.95	2.56
2-DH1	2441	32	4.95	2.56
2-DH1	2480	32.01	4.95	2.56

1.2 Test Graphs





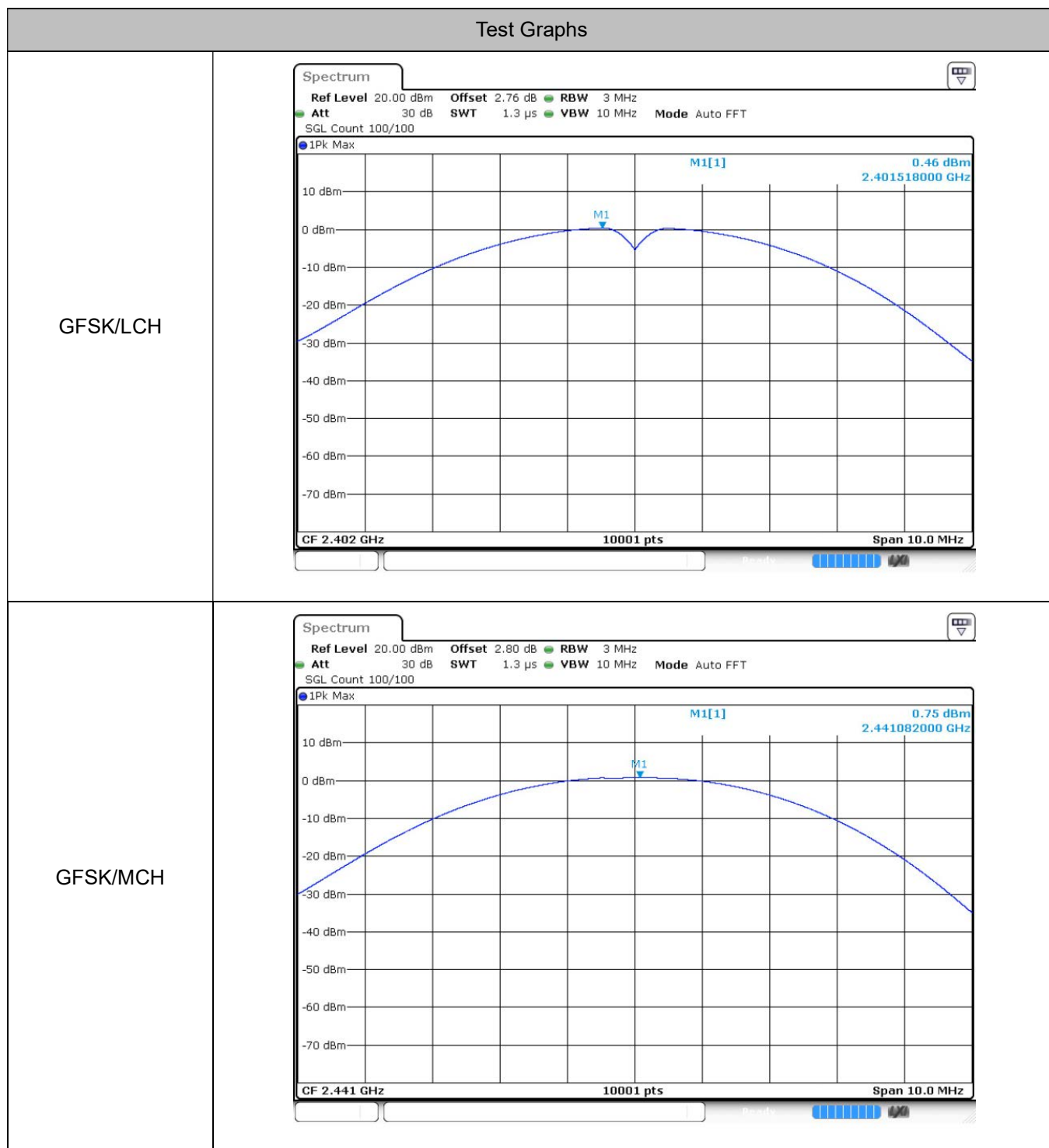


2 Maximum Conducted Peak Output Power

2.1 Test Result

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.46	21	Pass
	MCH	0.75	21	Pass
	HCH	0.92	21	Pass
$\pi/4$ DQPSK	LCH	0.86	21	Pass
	MCH	1.18	21	Pass
	HCH	1.29	21	Pass

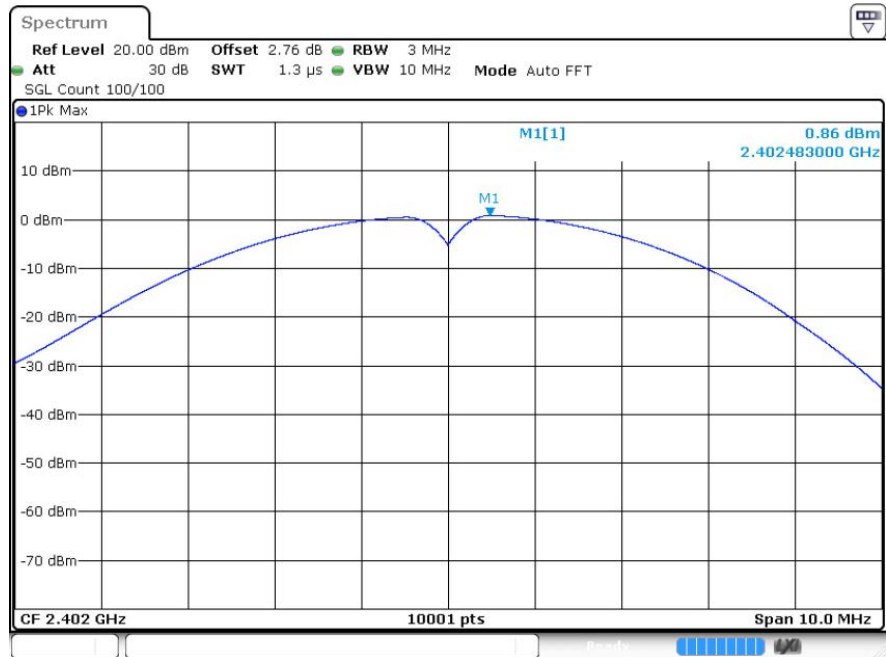
2.2 Test Graphs



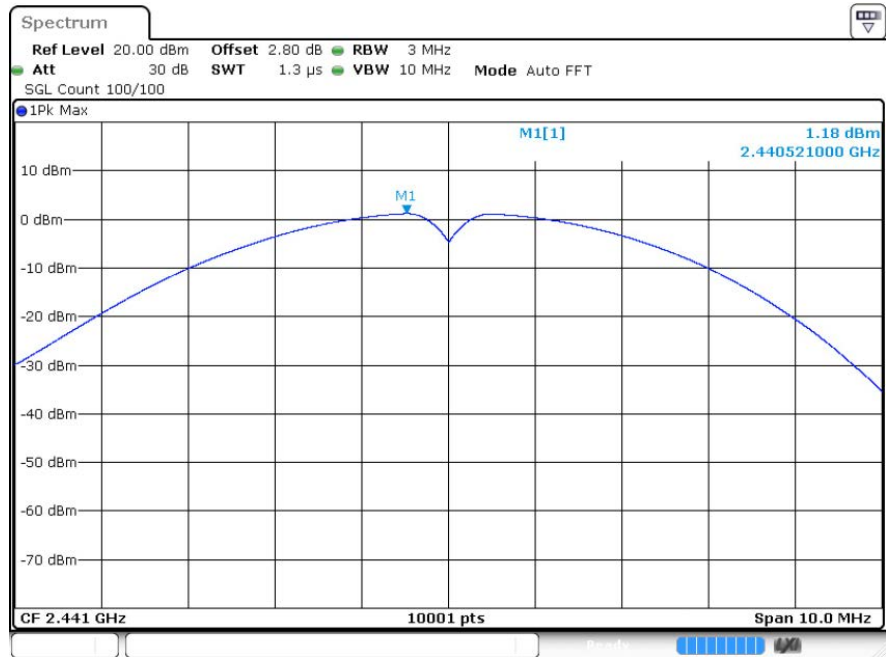
GFSK/HCH



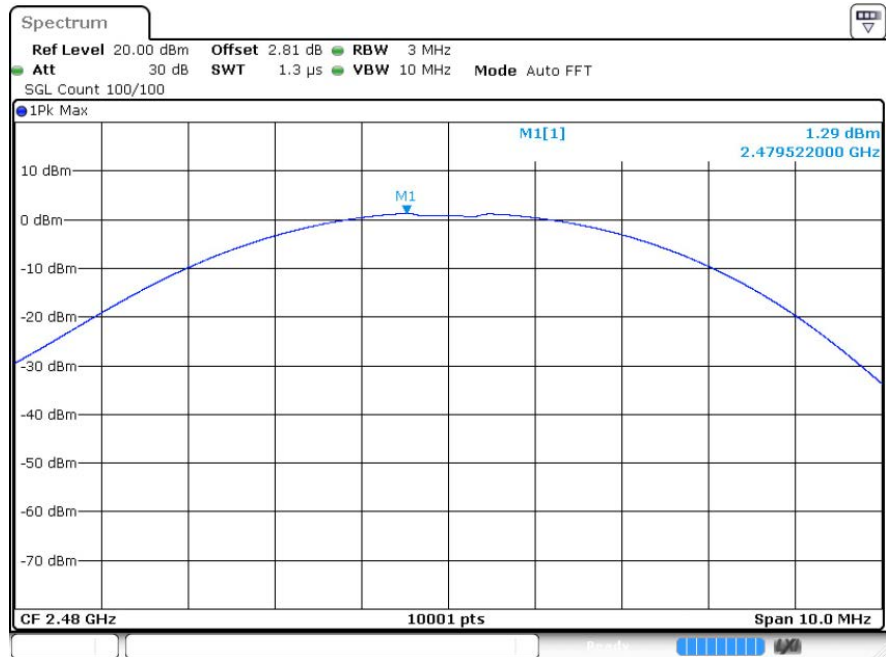
$\pi/4$ DQPSK/LCH



$\pi/4$ DQPSK/MCH



$\pi/4$ DQPSK/HCH

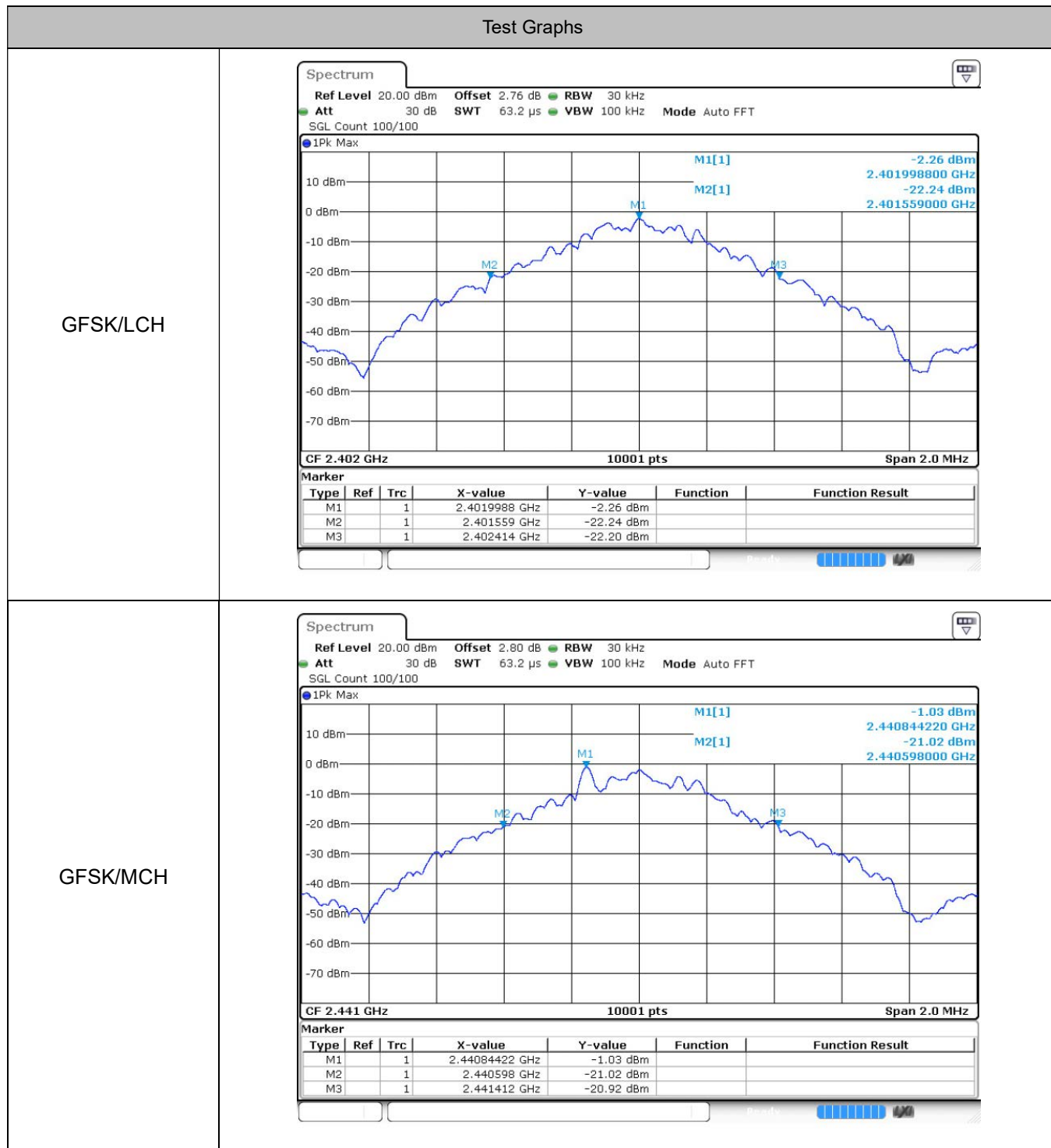


3 20dB Bandwidth

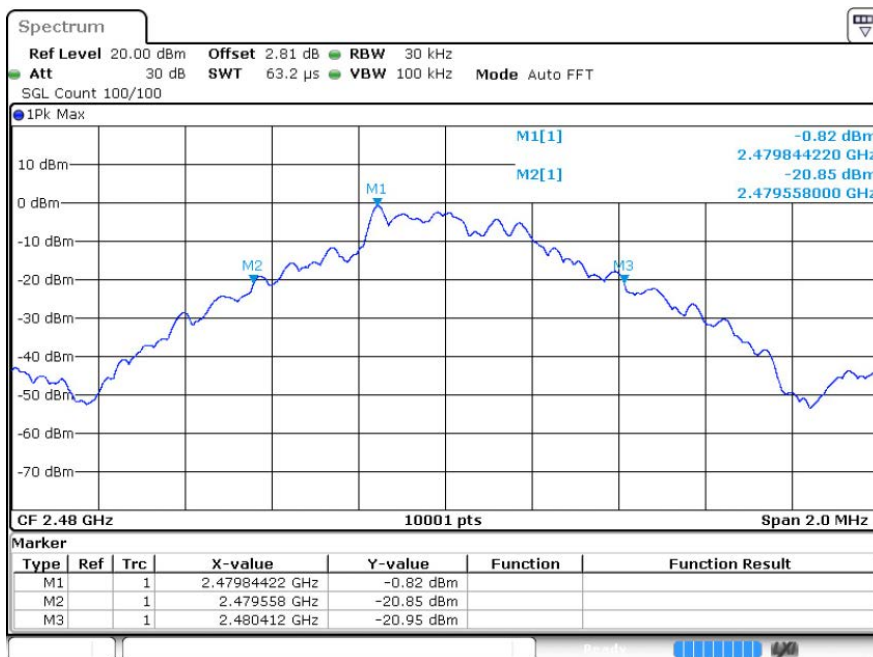
3.1 Test Result

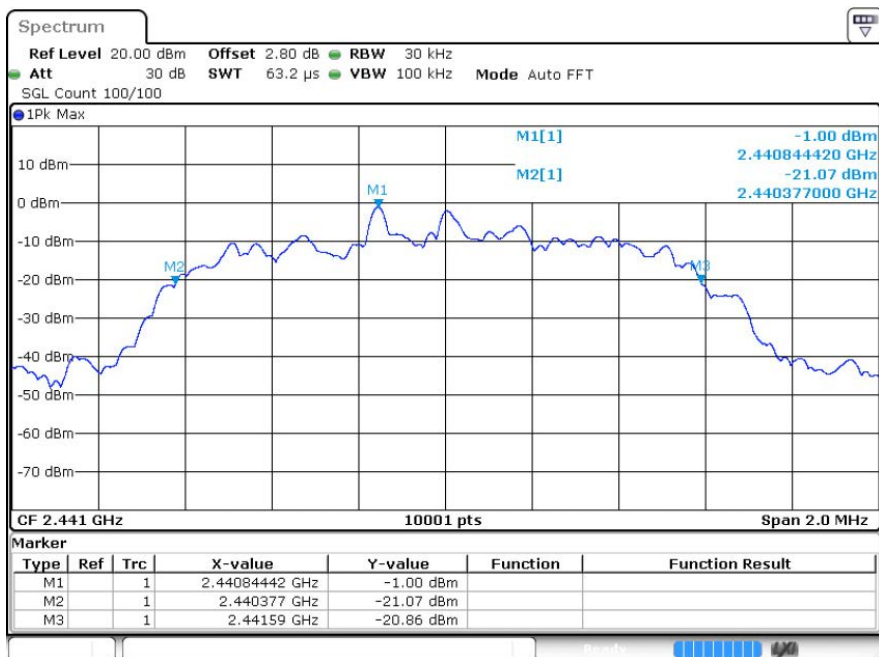
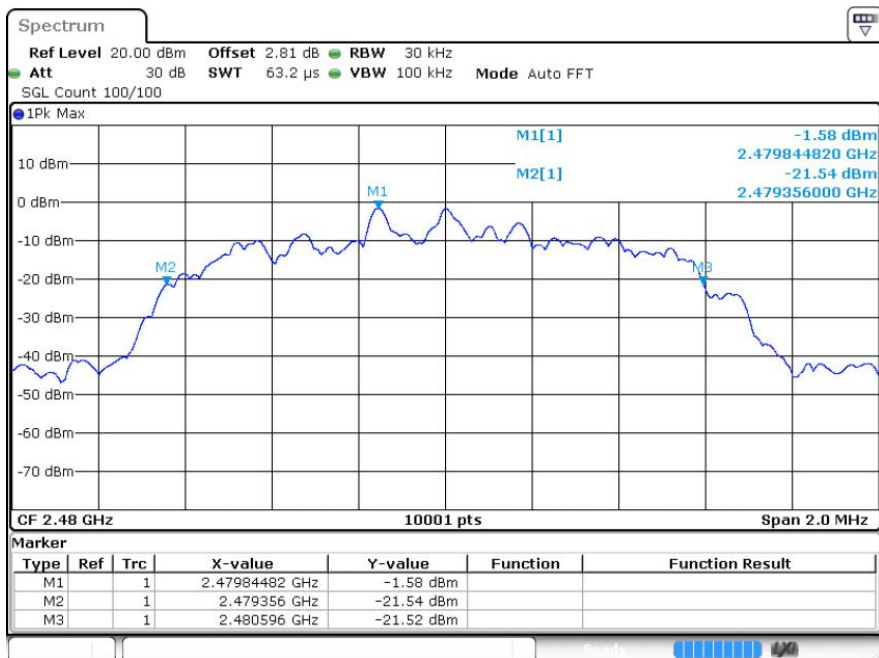
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.855	Not Specified	Pass
	MCH	0.815	Not Specified	Pass
	HCH	0.853	Not Specified	Pass
$\pi/4$ DQPSK	LCH	1.233	Not Specified	Pass
	MCH	1.213	Not Specified	Pass
	HCH	1.24	Not Specified	Pass

3.2 Test Graphs



GFSK/HCH


 $\pi/4$ DQPSK/LCH

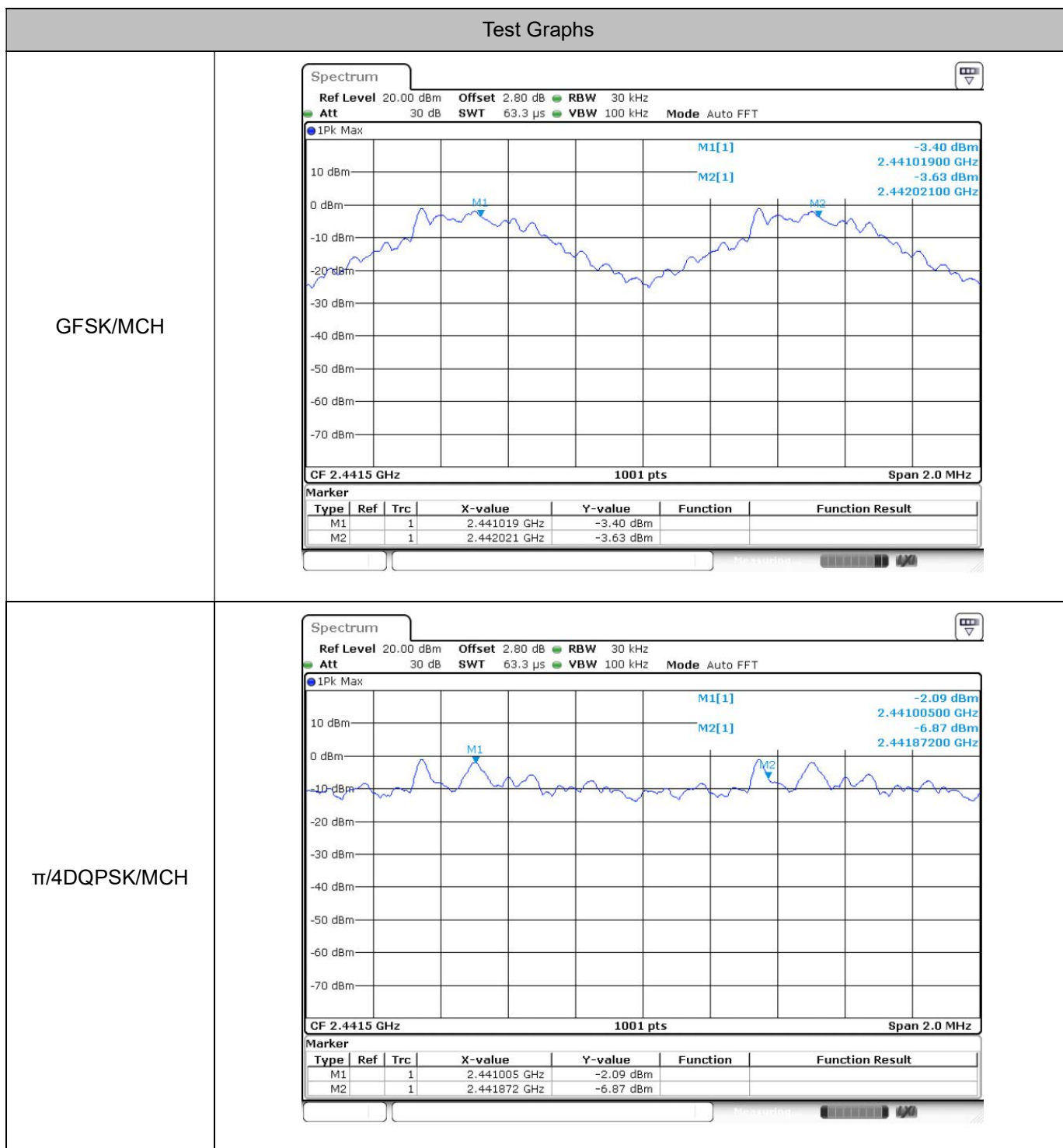

$\pi/4$ DQPSK/MCH

 $\pi/4$ DQPSK/HCH


4 Carrier Frequency Separation

4.1 Test Result

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	MCH	1.002	0.543	Pass
$\pi/4$ DQPSK	MCH	0.867	0.809	Pass

4.2 Test Graphs



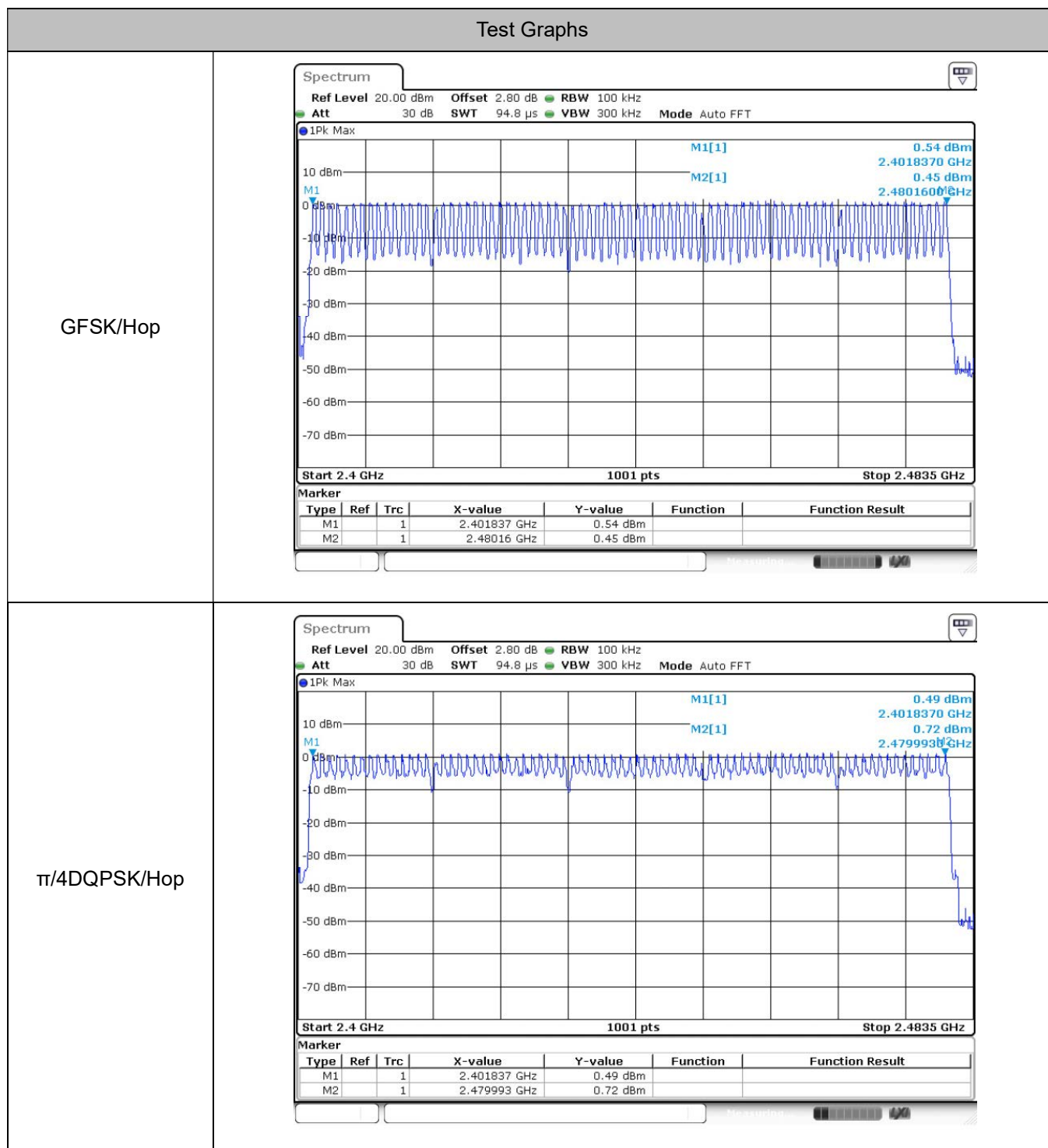


5 Hopping Channel Number

5.1 Test Result

Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	≥ 15	PASS
$\pi/4$ DQPSK	Hop	79	≥ 15	PASS

5.2 Test Graphs

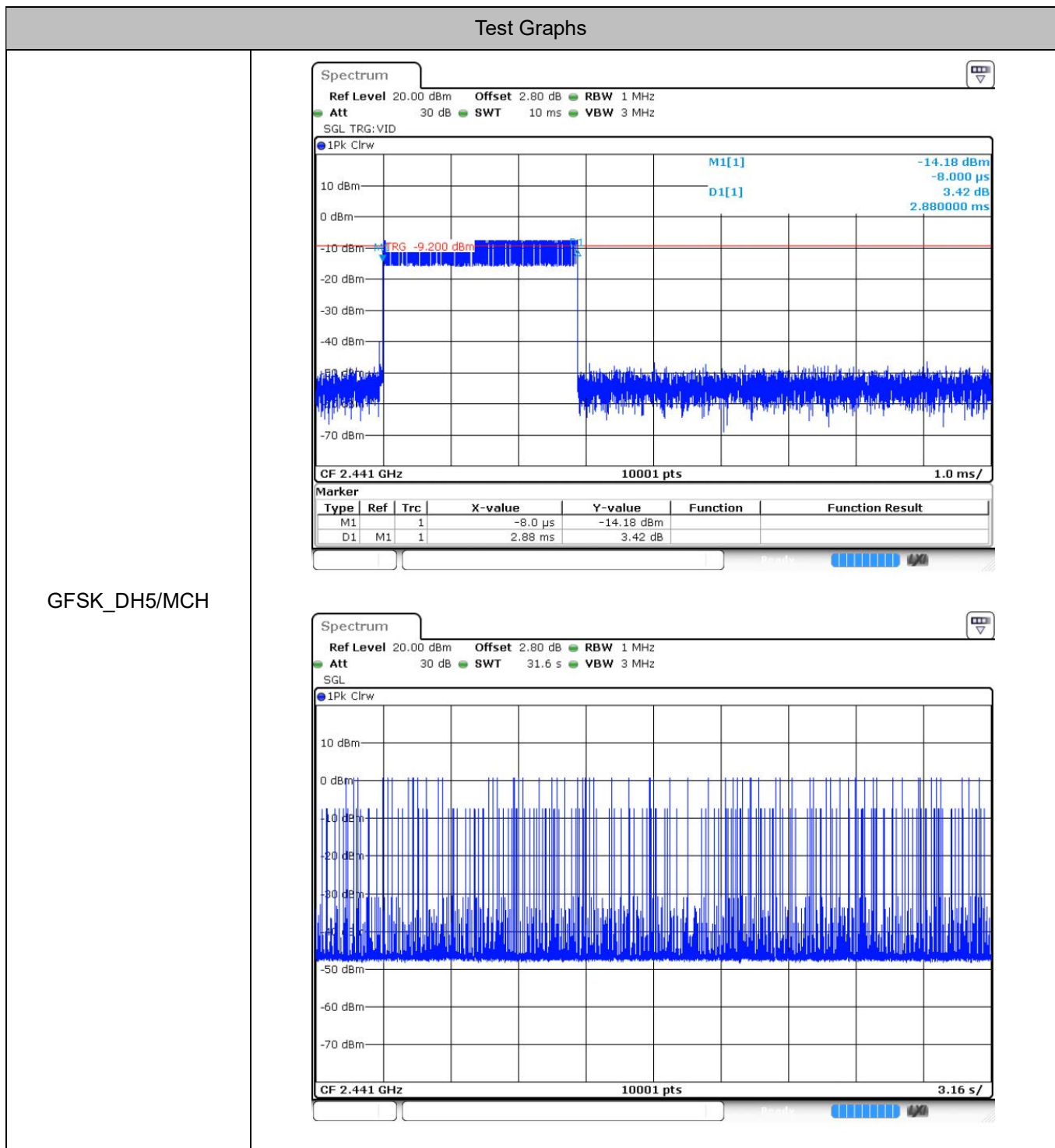


6 Dwell Time

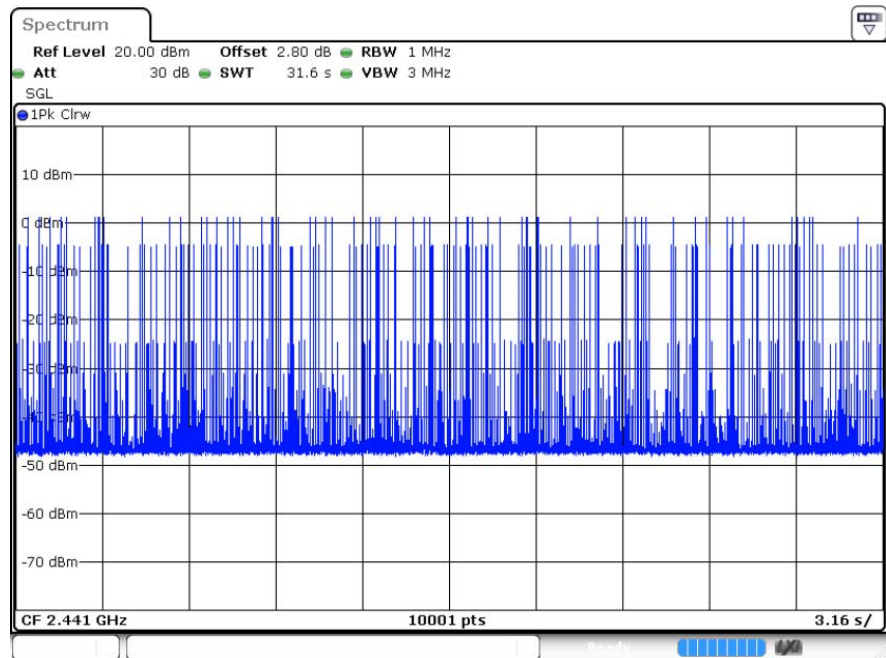
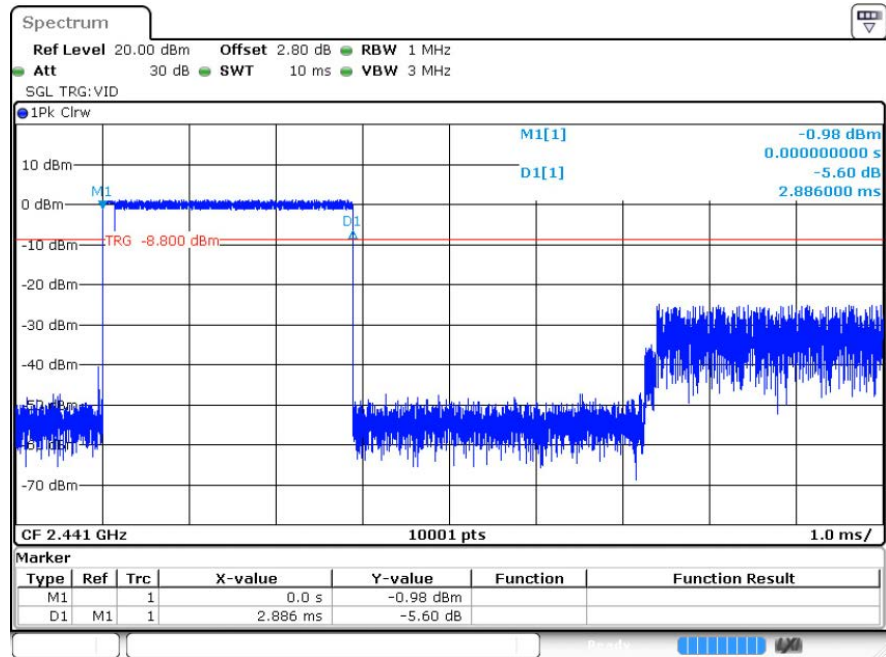
6.1 Test Result

Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[ms]	Limit [s]	Verdict
GFSK	DH5	MCH	2.88	67	192.96	0.4	Pass
$\pi/4$ DQPSK	2DH5	MCH	2.886	64	184.704	0.4	Pass

6.2 Test Graphs



$\pi/4$ DQPSK
_2DH5/MCH



7 RF Conducted Spurious Emissions

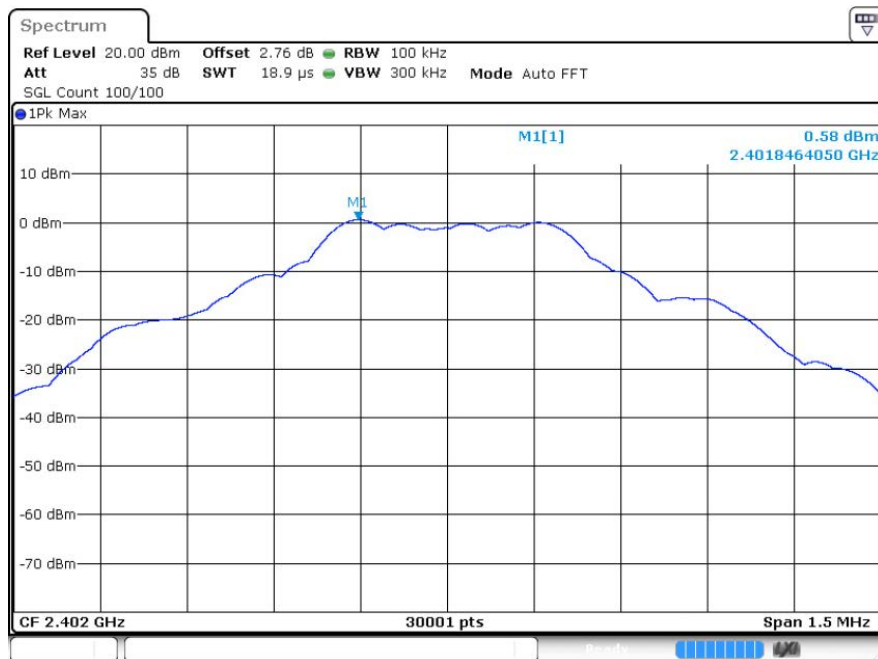
7.1 Test Result

Mode	Channel	Max. Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	-41.81	-20	Pass
	MCH	-41.99	-20	Pass
	HCH	-42.43	-20	Pass
$\pi/4$ DQPSK	LCH	-42.72	-20	Pass
	MCH	-41.31	-20	Pass
	HCH	-42.54	-20	Pass

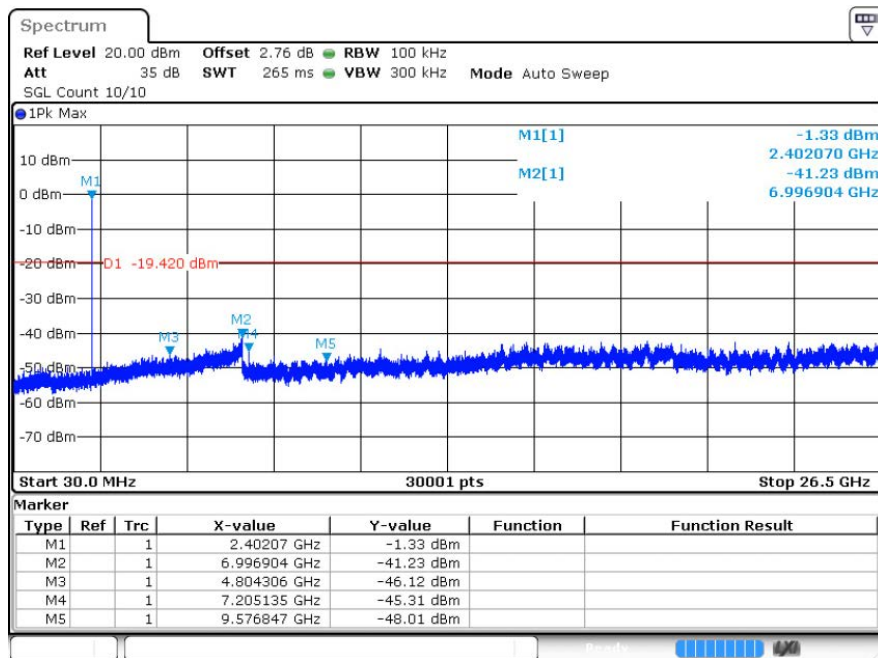
7.2 Test Graphs

GFSK_LCH_Graphs

Pref

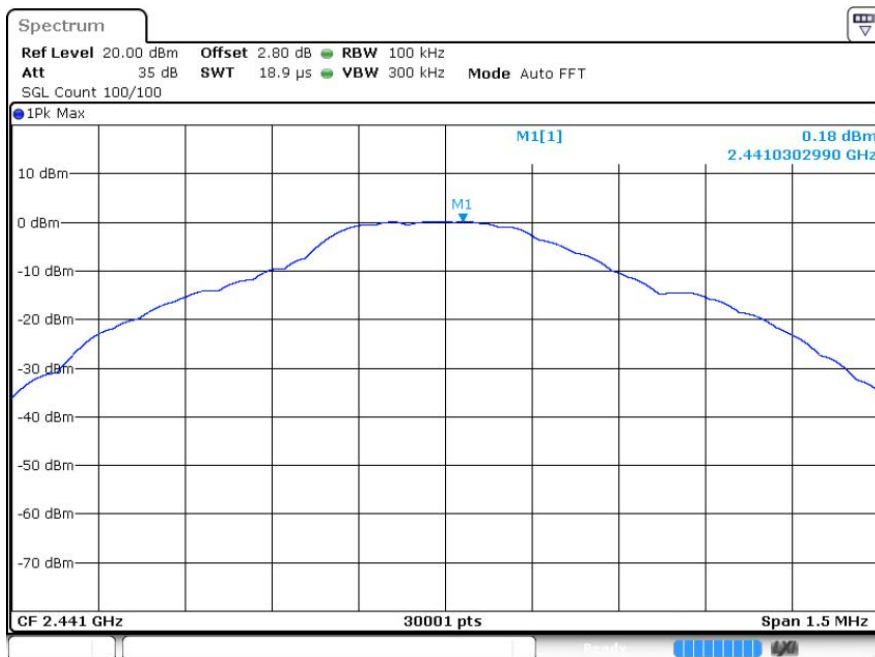


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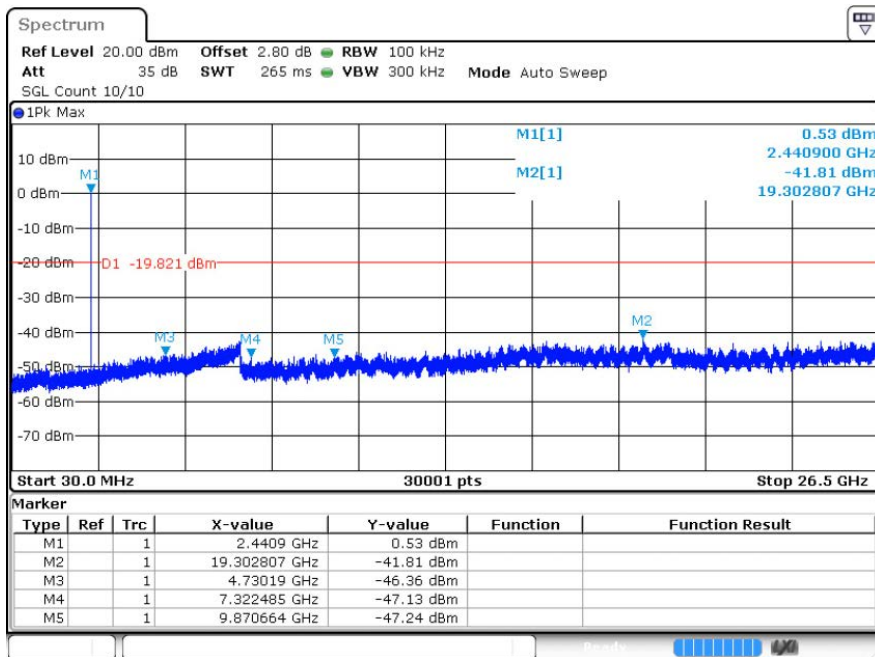


GFSK_MCH_Graphs

Pref



Puw

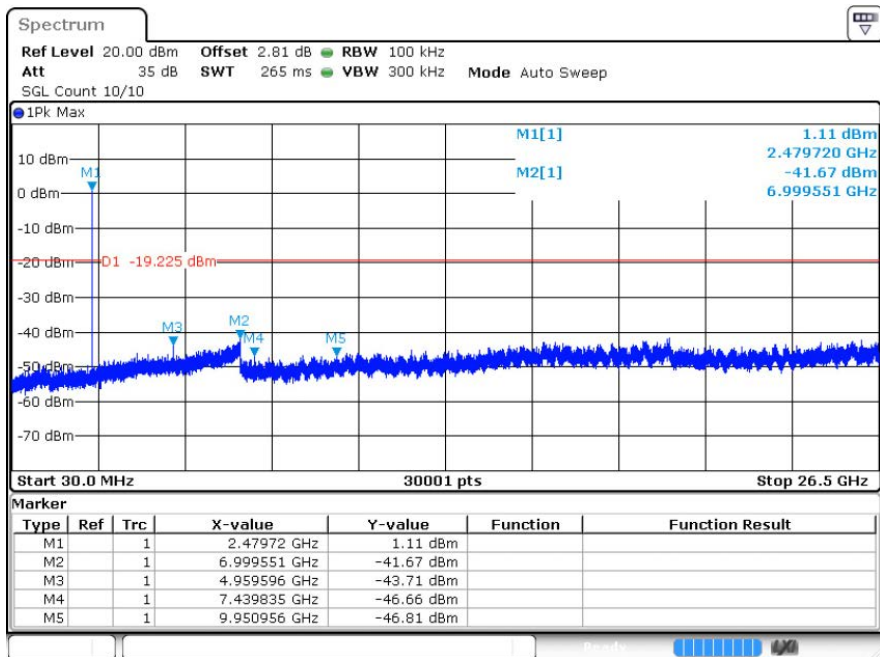


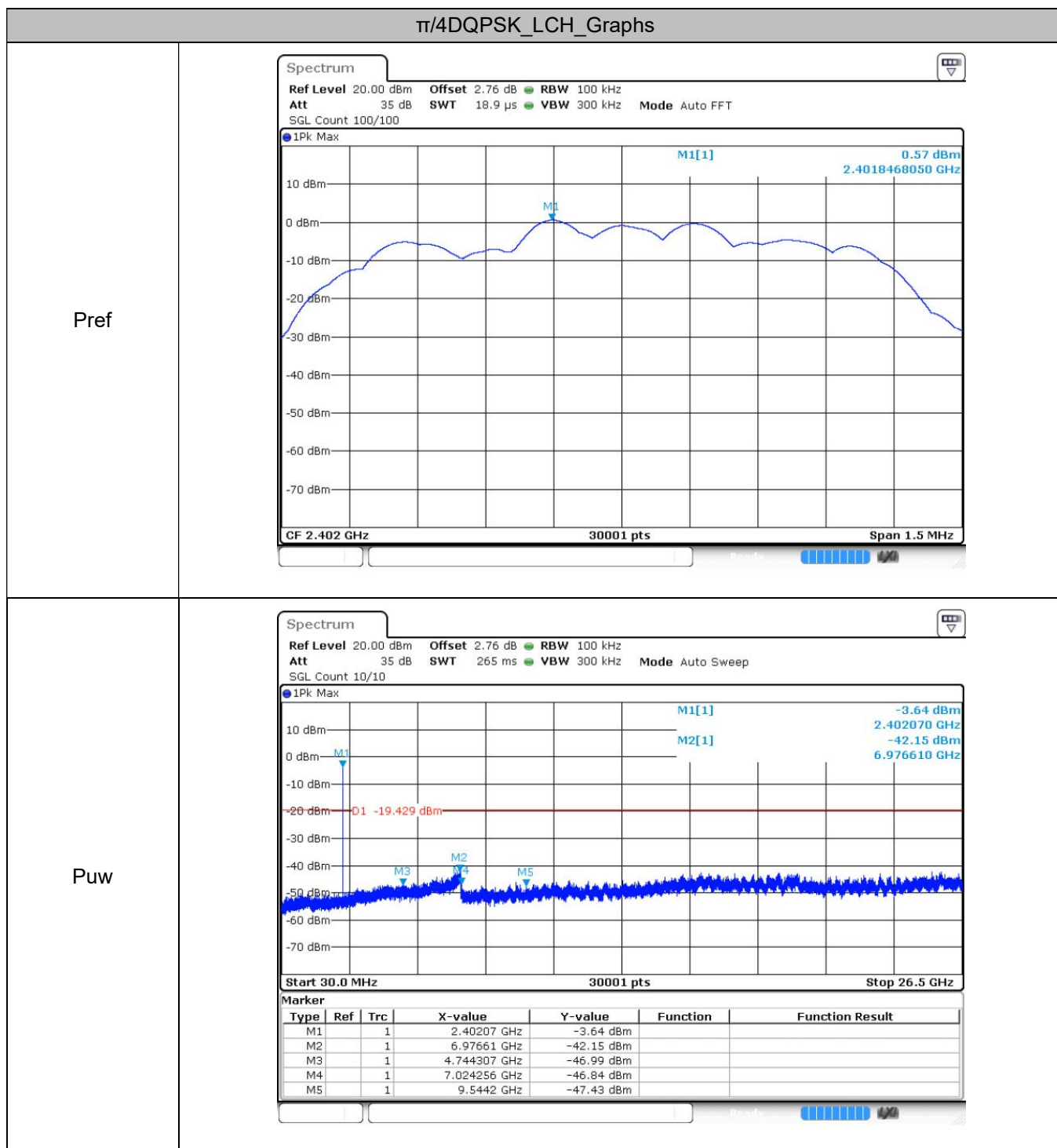
GFSK_HCH_Graphs

Pref



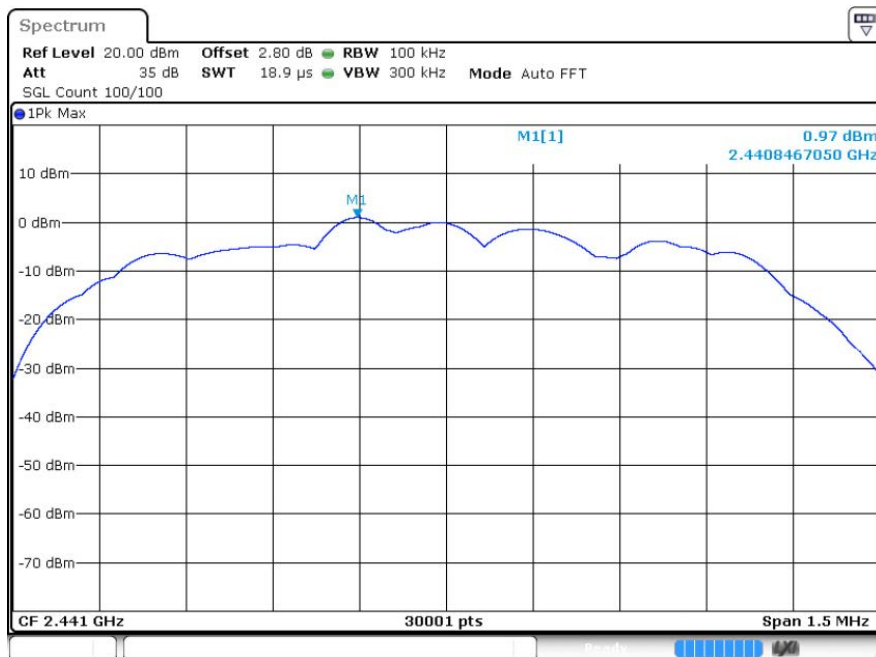
Puw



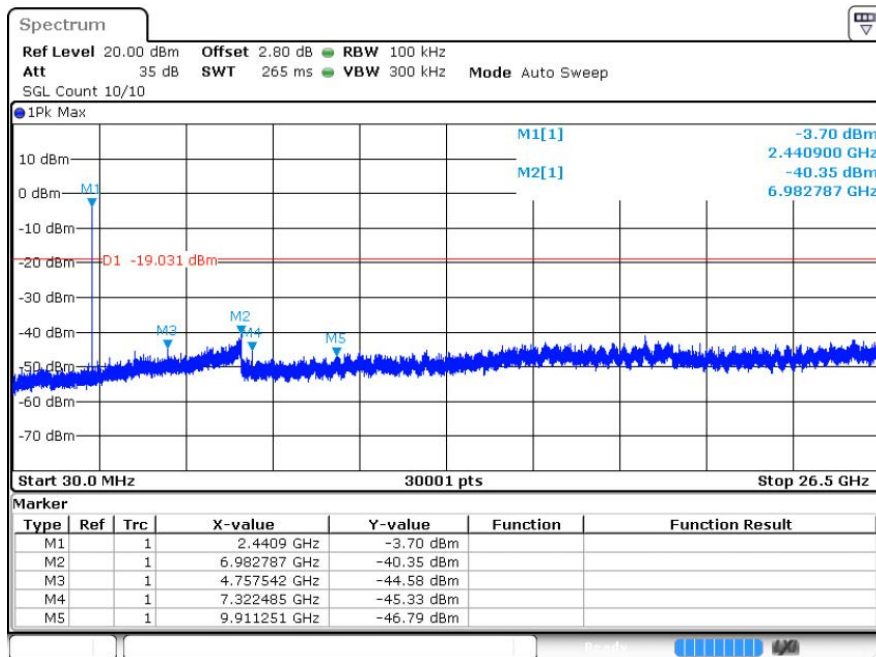


π /4DQPSK_MCH_Graphs

Pref

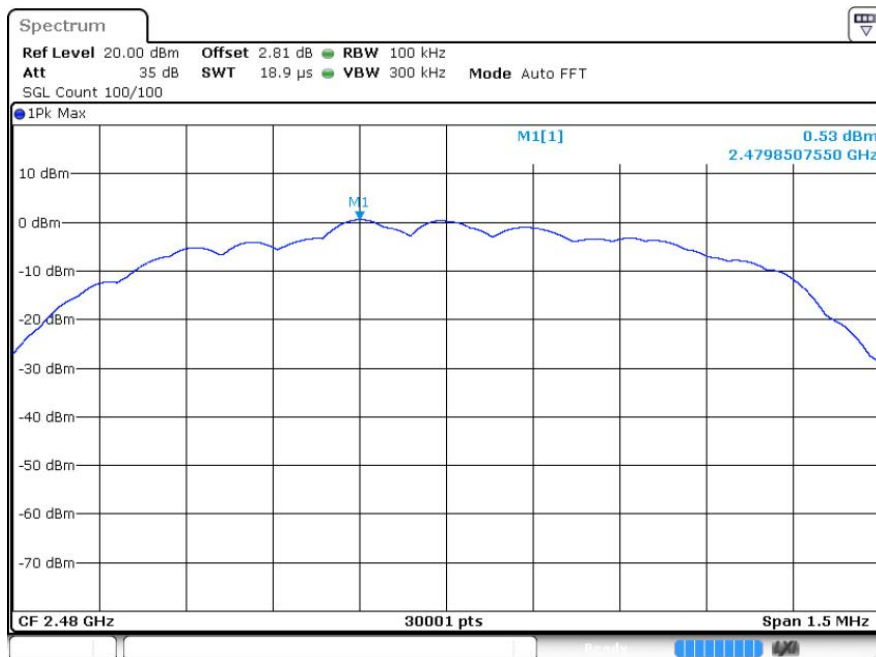


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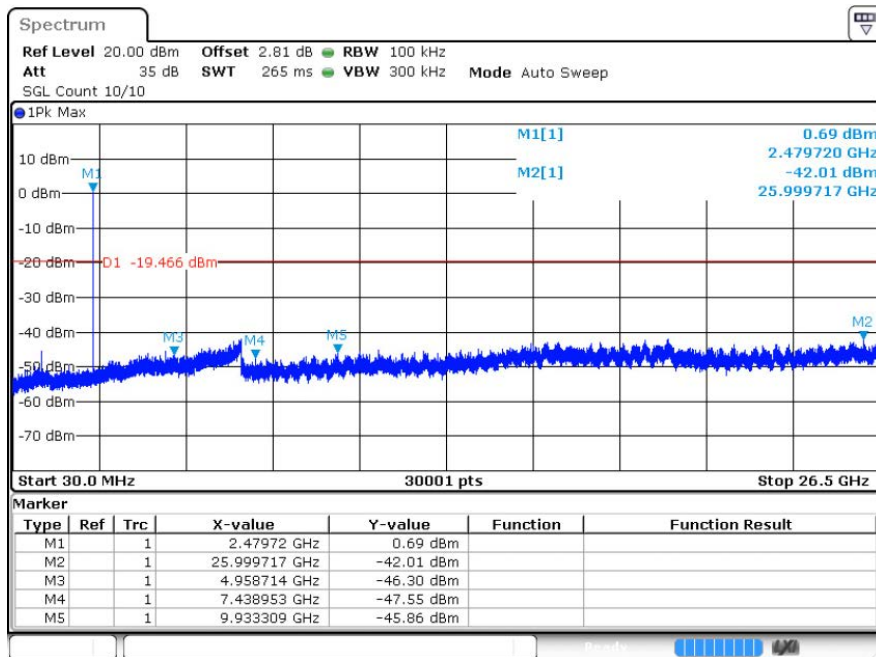


$\pi/4$ DQPSK_HCH_Graphs

Pref



Puw

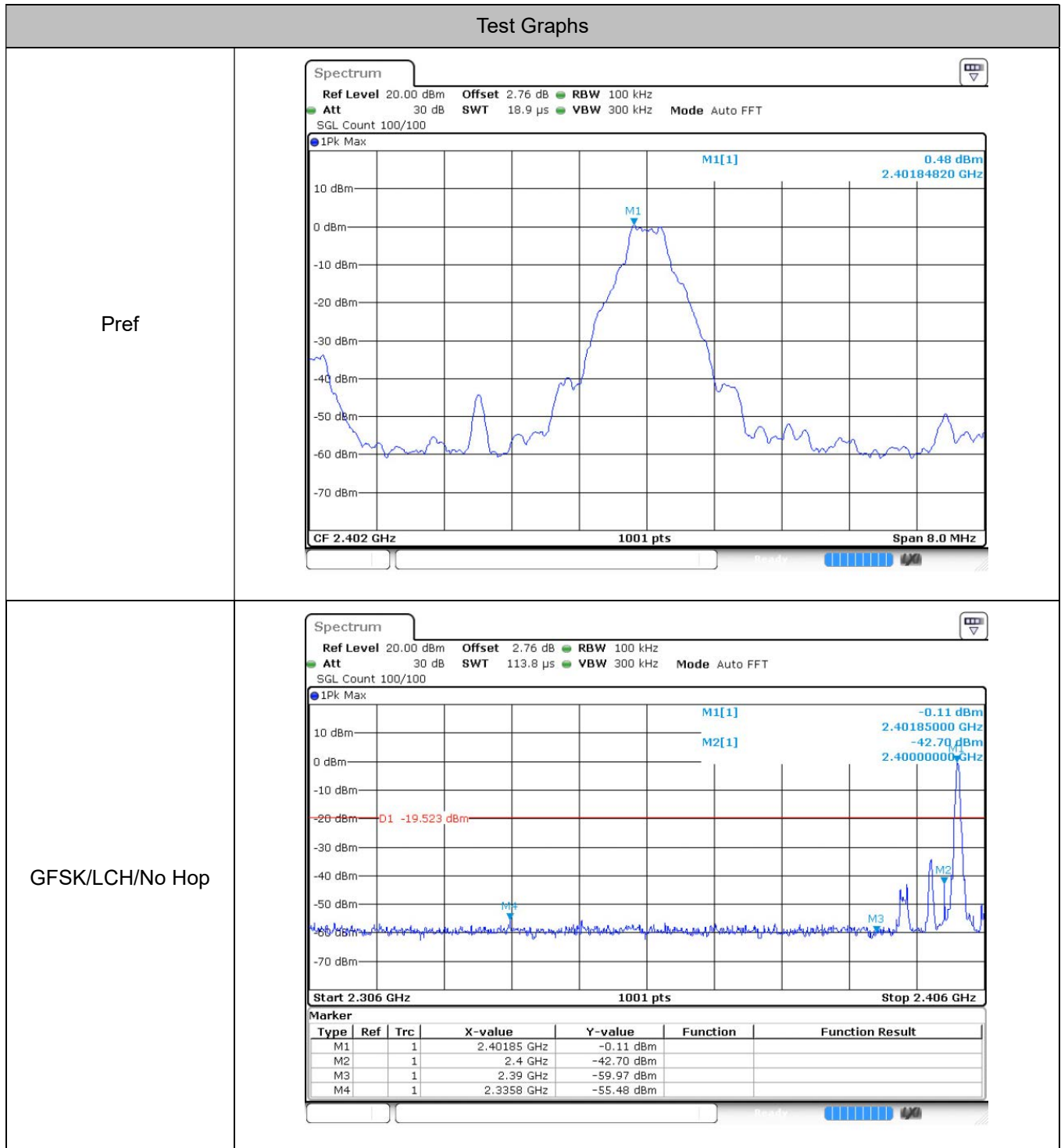


8 Band-edge for RF Conducted Emissions

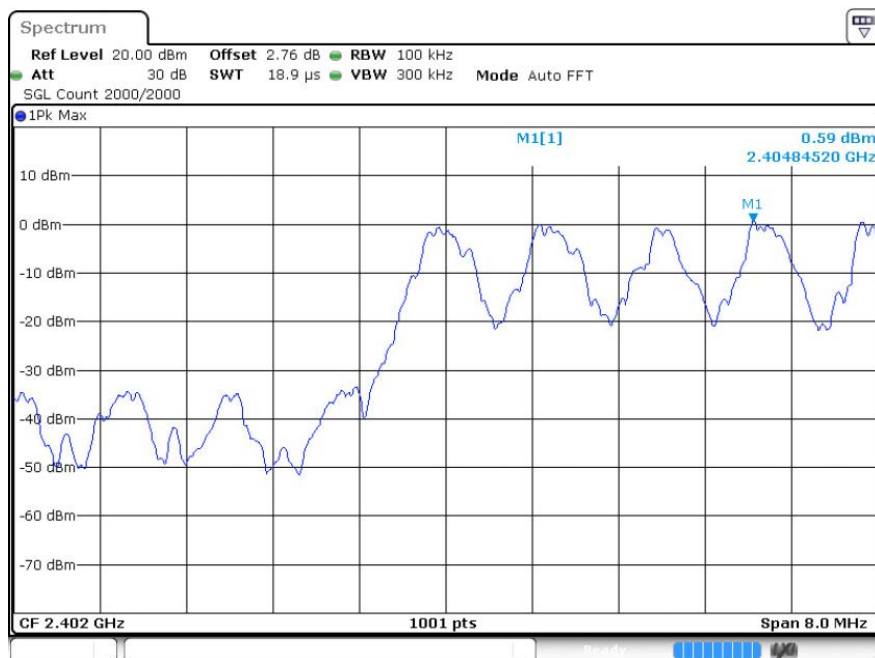
8.1 Test Result

Mode	Channel	Carrier Frequency [MHz]	Frequency Hopping	Max Spurious Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	2402	Off	-55.95	-20	Pass
			On	-55.34	-20	Pass
	HCH	2480	Off	-46.74	-20	Pass
			On	-49.97	-20	Pass
$\pi/4$ DQPSK	LCH	2402	Off	-55.22	-20	Pass
			On	-55.59	-20	Pass
	HCH	2480	Off	-47.28	-20	Pass
			On	-51.16	-20	Pass

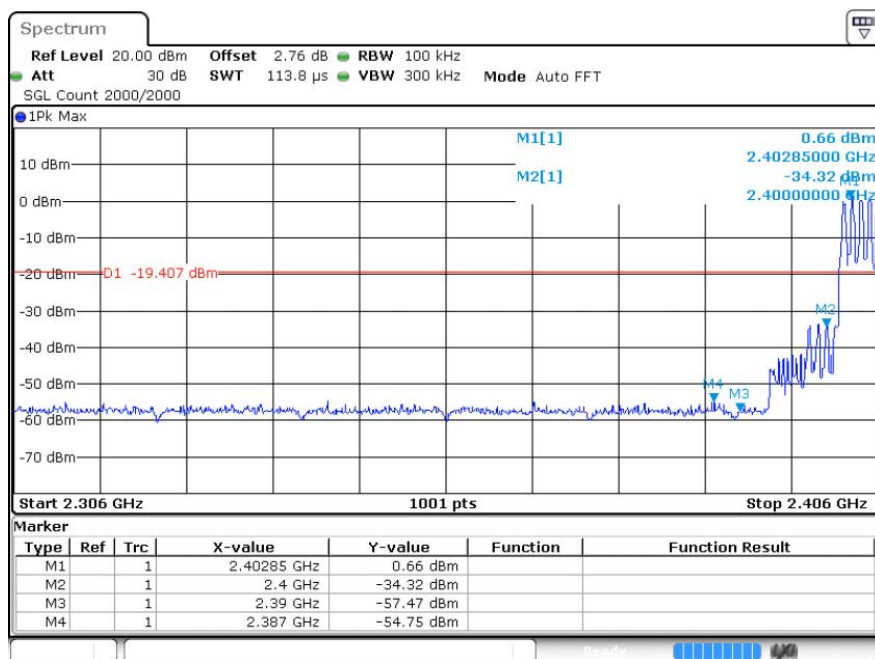
8.2 Test Graphs



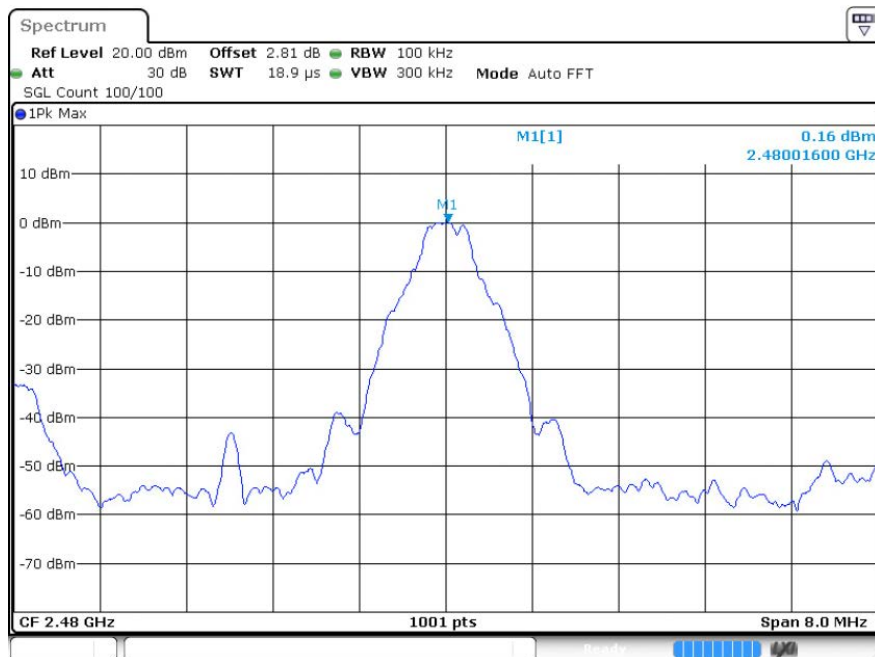
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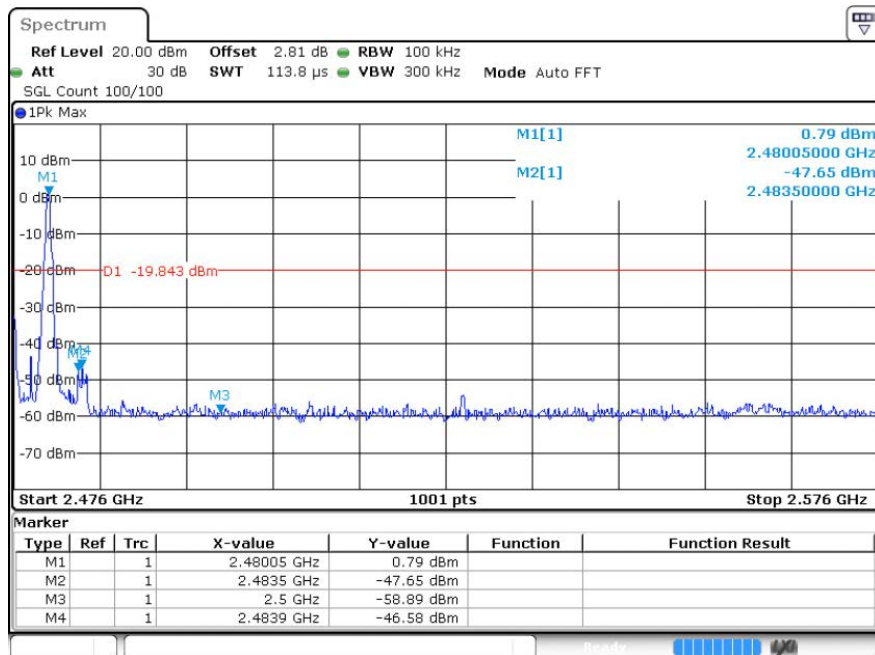
GFSK/LCH/Hop



Ref



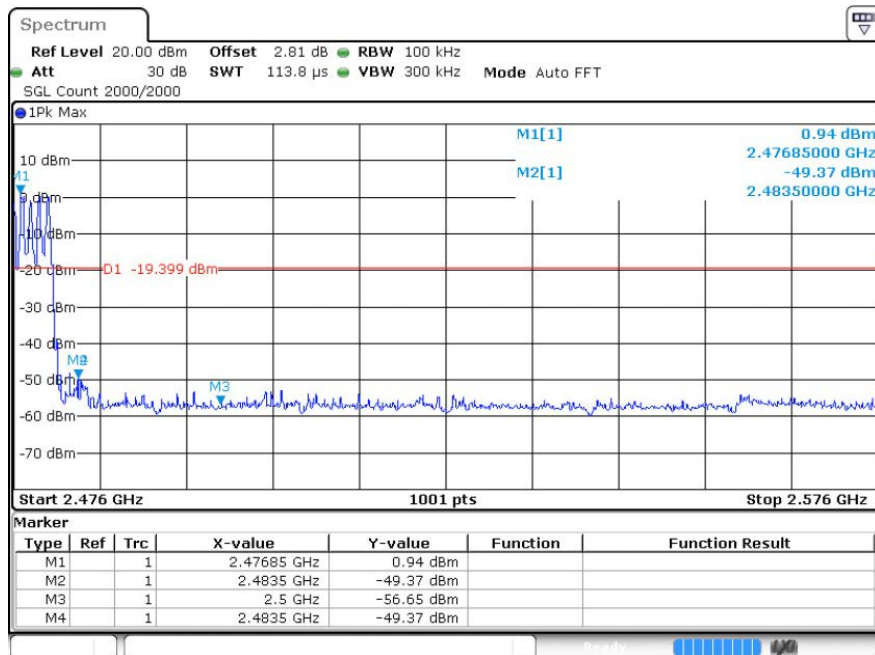
GFSK/HCH/No Hop



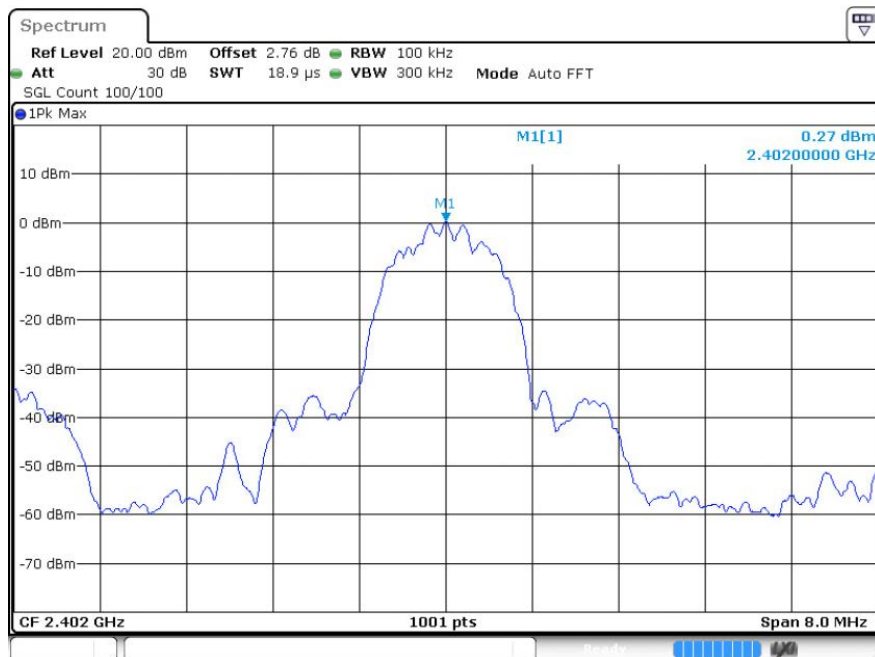
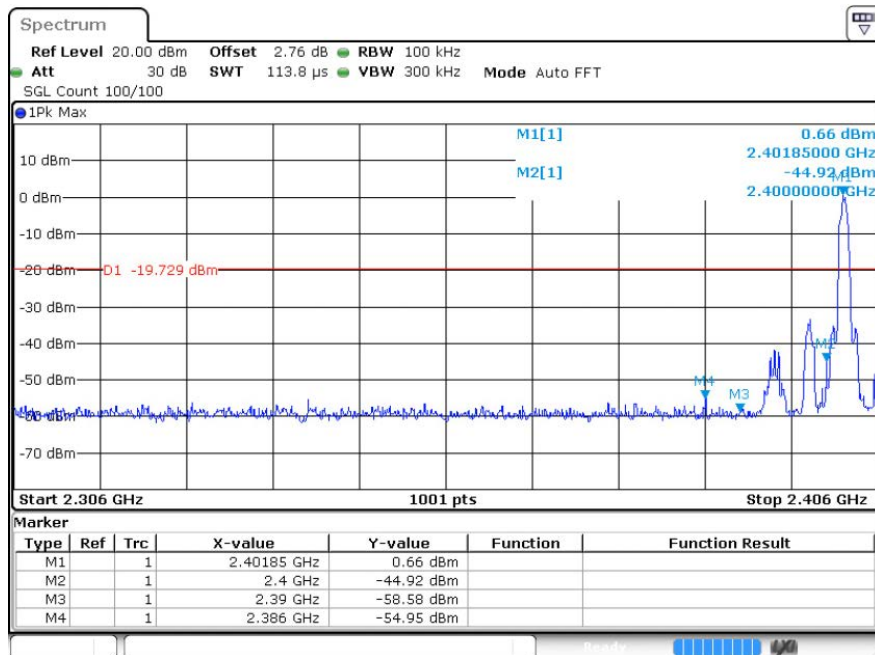
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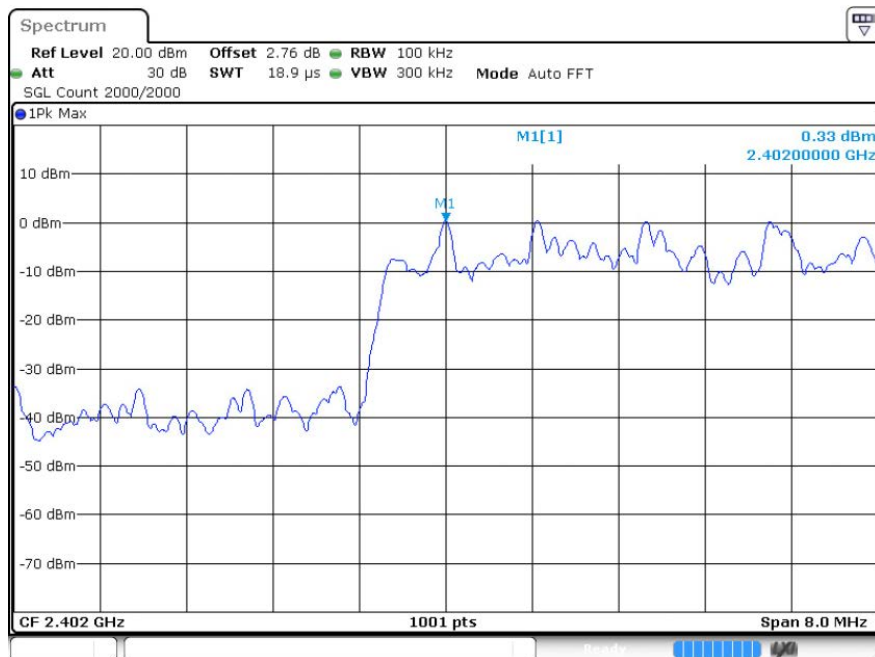
GFSK/HCH/Hop



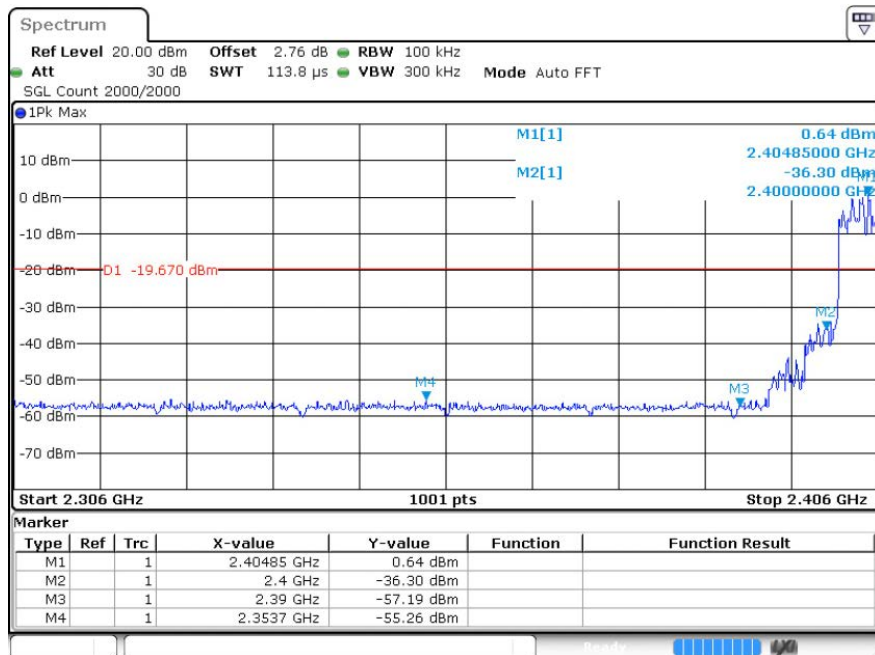
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 $\pi/4$ DQPSK/LCH/No Hop


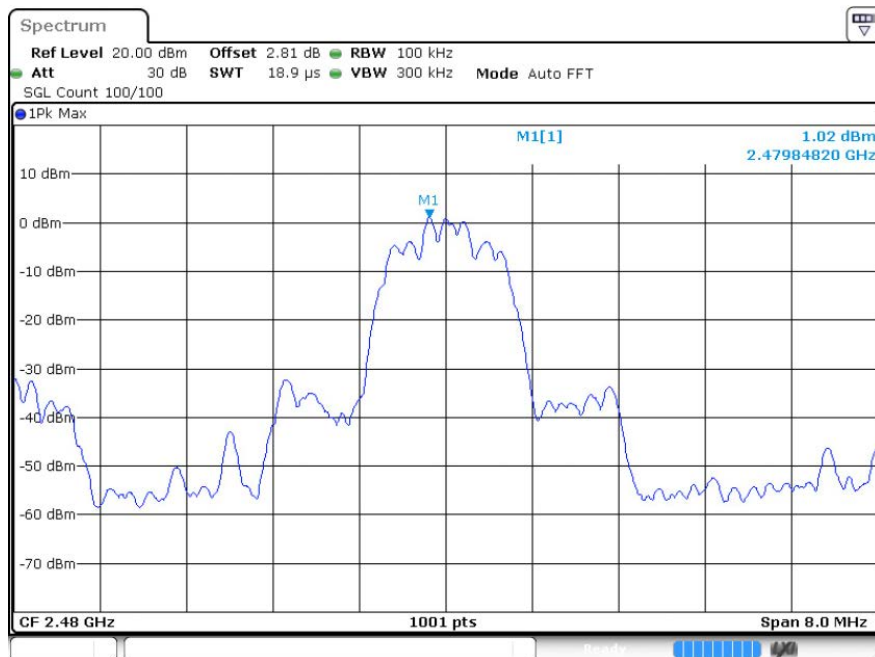
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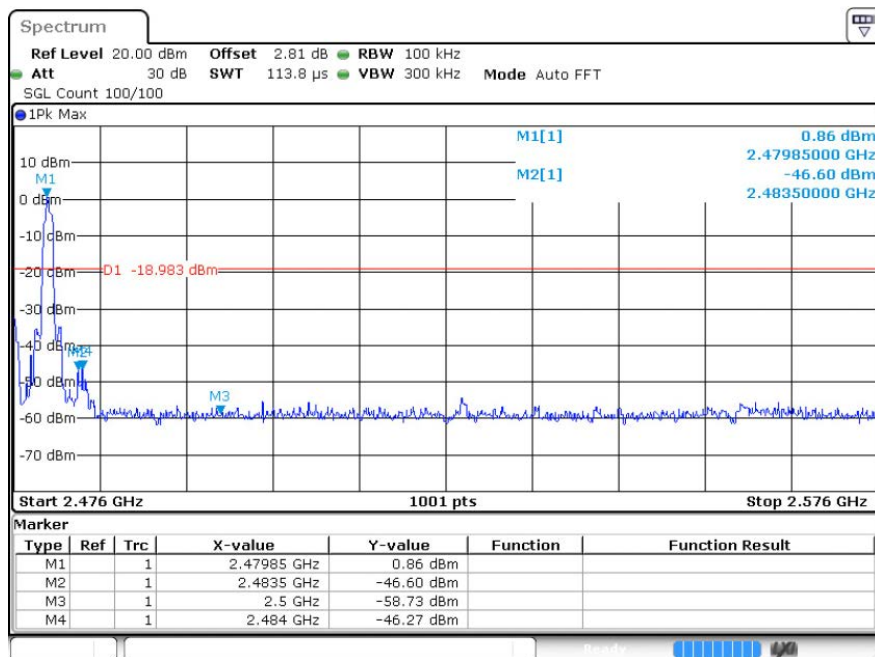
$\pi/4$ DQPSK/LCH/Hop



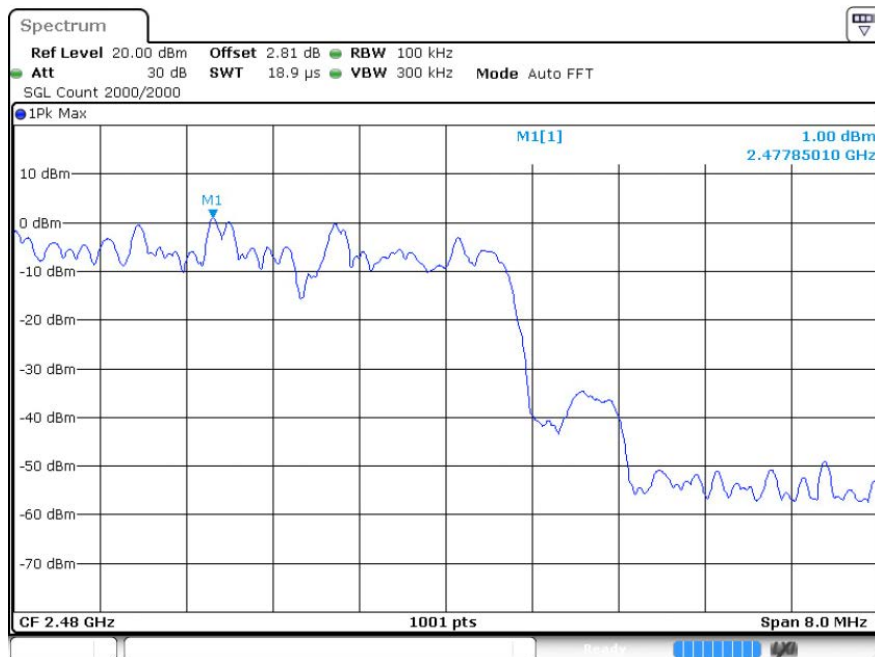
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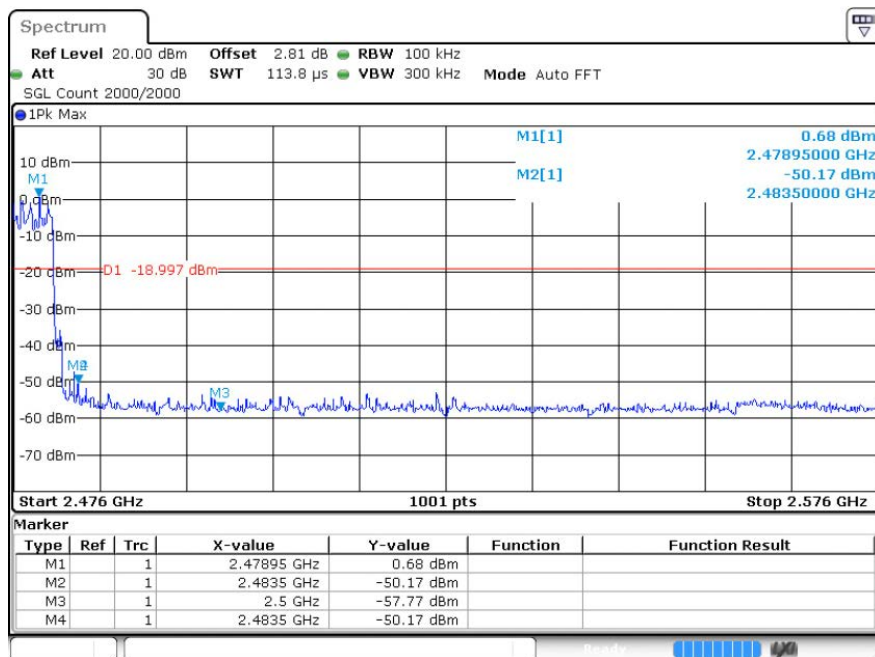
$\pi/4$ DQPSK/HCH/No
Hop



Ref



$\pi/4$ DQPSK/HCH/Hop



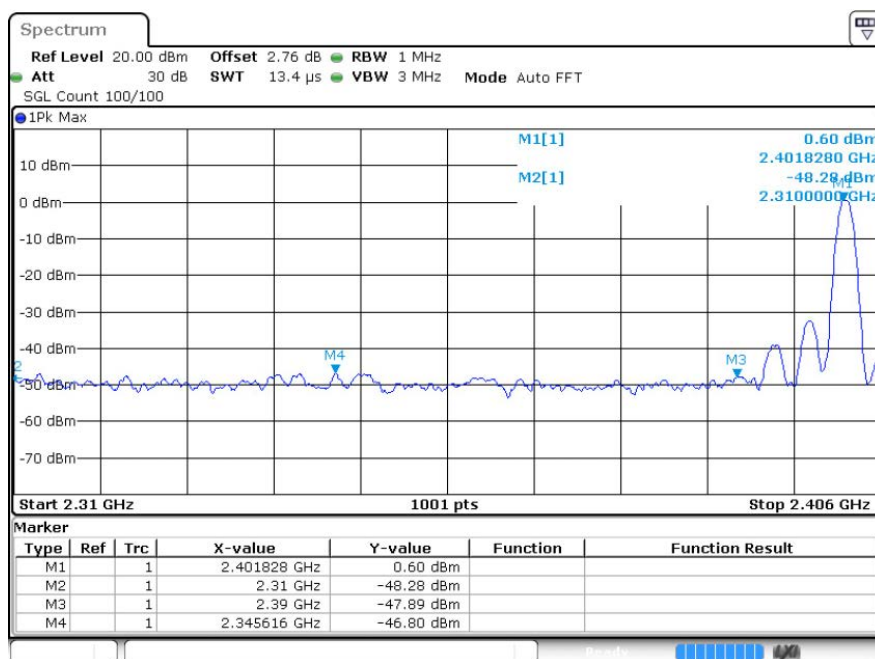
9 Restrict-band band-edge measurements

9.1 Test Result

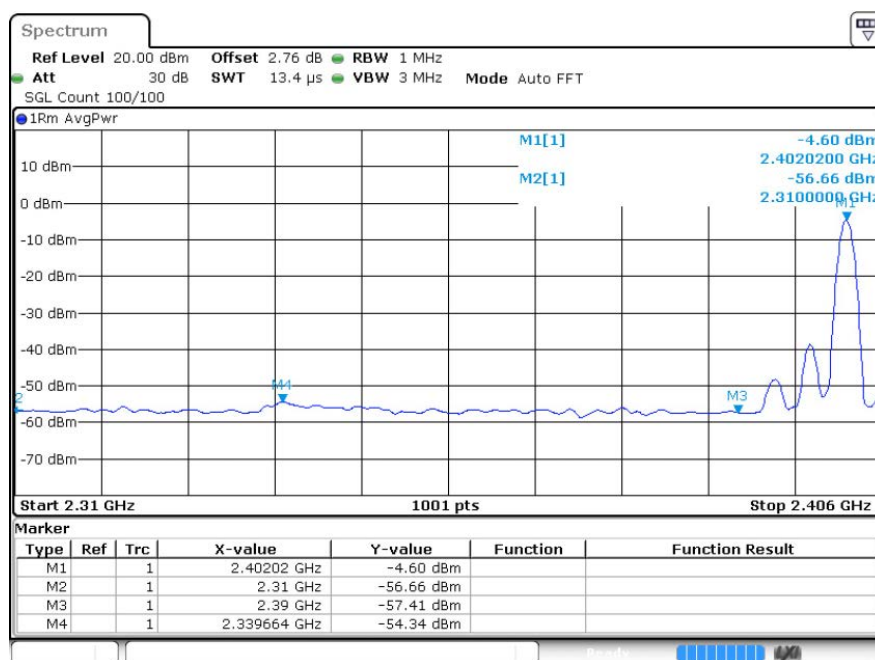
Test Mode	Hopping	Freq.	Power [dBm]	Gain	Duty Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-48.28	2	-	48.98	PEAK	74	Pass
	Off	2310.0	-56.66	2	5.17	45.77	AV	54	Pass
	Off	2345.616	-46.79	2	-	50.47	PEAK	74	Pass
	Off	2339.664	-54.33	2	5.17	48.1	AV	54	Pass
	Off	2390.0	-47.89	2	-	49.37	PEAK	74	Pass
	Off	2390.0	-57.41	2	5.17	45.02	AV	54	Pass
	Off	2483.5	-41.4	2	-	55.86	PEAK	74	Pass
	Off	2483.5	-53.2	2	5.17	49.23	AV	54	Pass
	Off	2483.512	-41.5	2	-	55.76	PEAK	74	Pass
	Off	2484.064	-52.19	2	5.17	50.24	AV	54	Pass
	Off	2500.0	-50.47	2	-	46.79	PEAK	74	Pass
	Off	2500.0	-56.63	2	5.17	45.8	AV	54	Pass
$\pi/4$ DQPSK	Off	2310.0	-49.77	2	-	47.49	PEAK	74	Pass
	Off	2310.0	-57.48	2	4.95	44.73	AV	54	Pass
	Off	2339.952	-45.46	2	-	51.8	PEAK	74	Pass
	Off	2338.032	-54.63	2	4.95	47.58	AV	54	Pass
	Off	2390.0	-50.8	2	-	46.46	PEAK	74	Pass
	Off	2390.0	-56.65	2	4.95	45.56	AV	54	Pass
	Off	2483.5	-41.99	2	-	55.27	PEAK	74	Pass
	Off	2483.5	-53.42	2	4.95	48.79	AV	54	Pass
	Off	2483.56	-41.93	2	-	55.33	PEAK	74	Pass
	Off	2484.232	-53.06	2	4.95	49.15	AV	54	Pass
	Off	2500.0	-50.48	2	-	46.78	PEAK	74	Pass
	Off	2500.0	-57.2	2	4.95	45.01	AV	54	Pass

9.2 Test Graphs

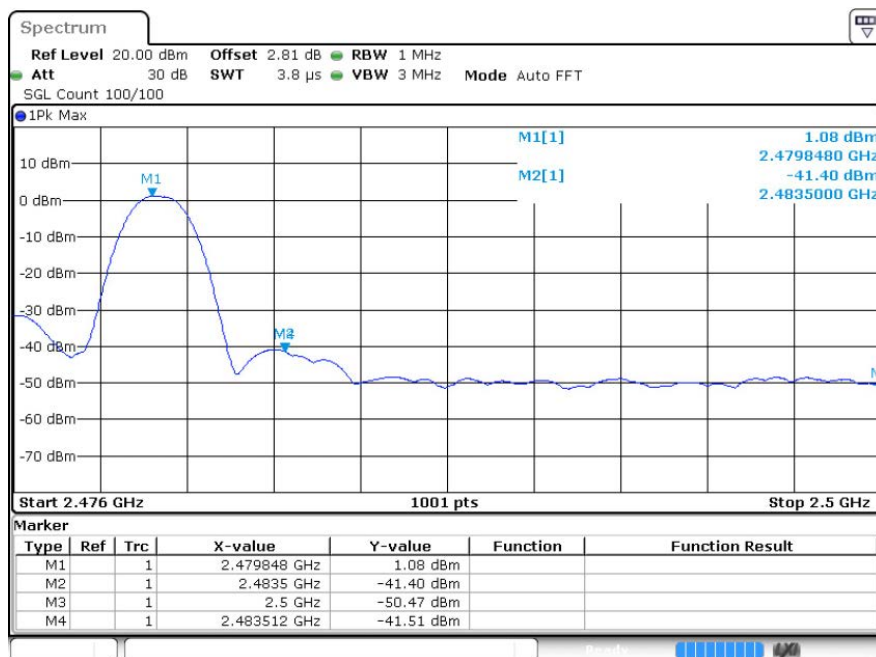
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (Low Channel)



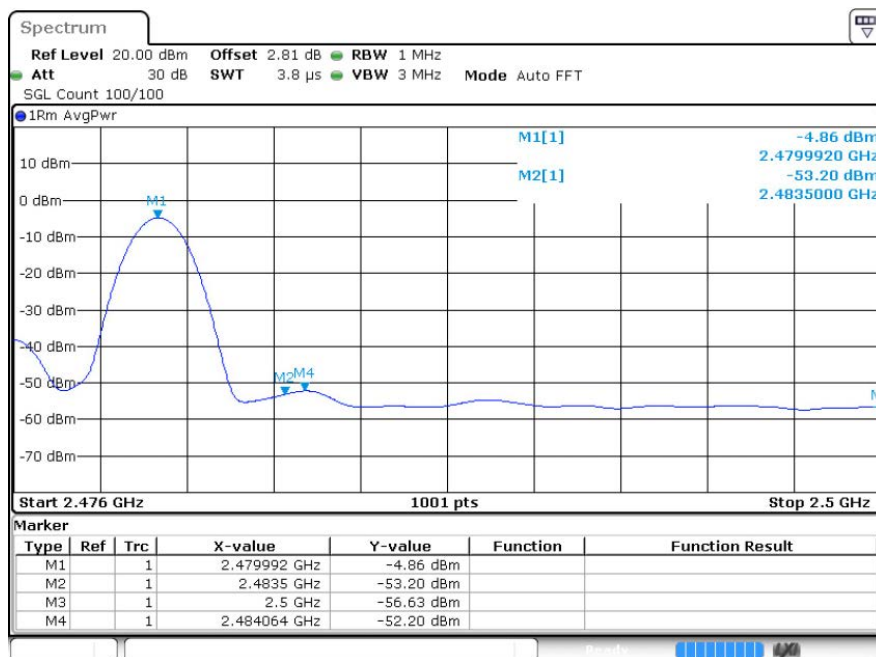
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (Low Channel)



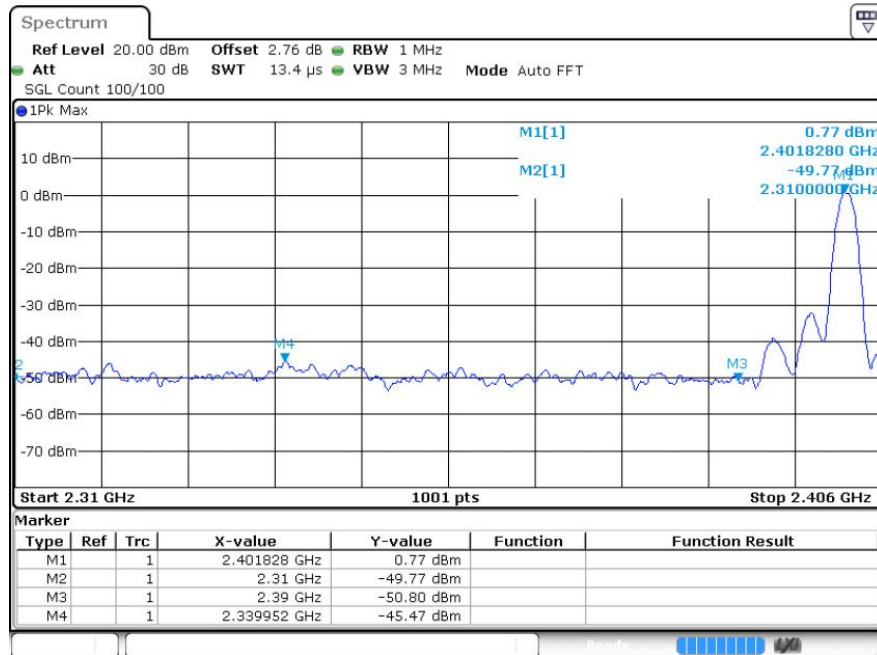
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (High Channel)



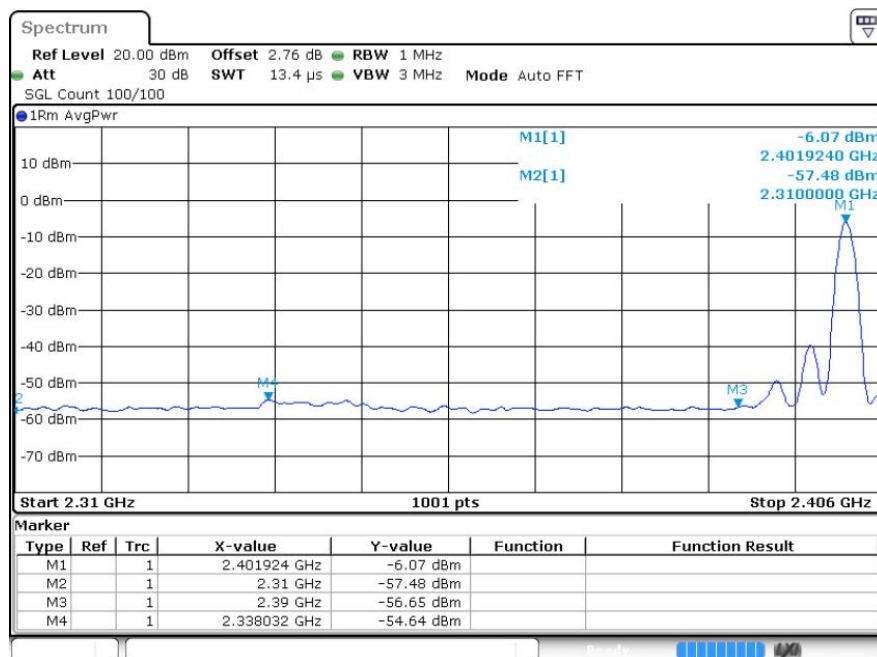
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (High Channel)



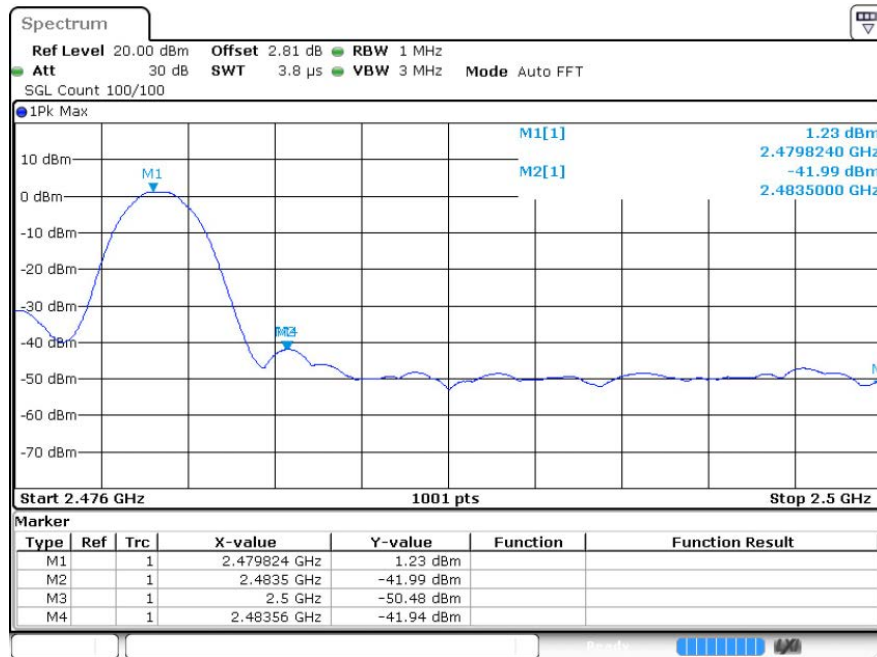
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (Low Channel)



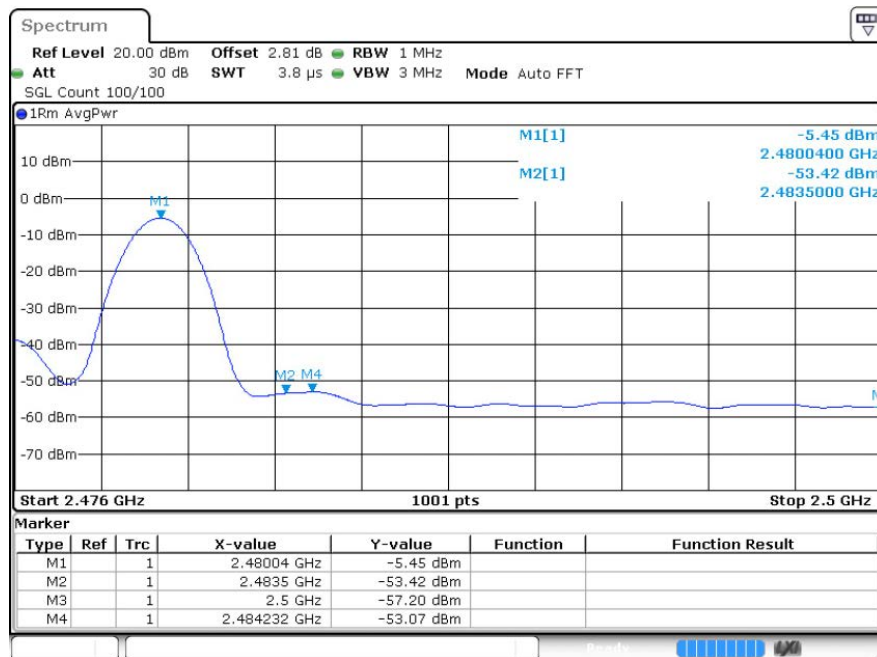
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (Low Channel)



Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



---The End---